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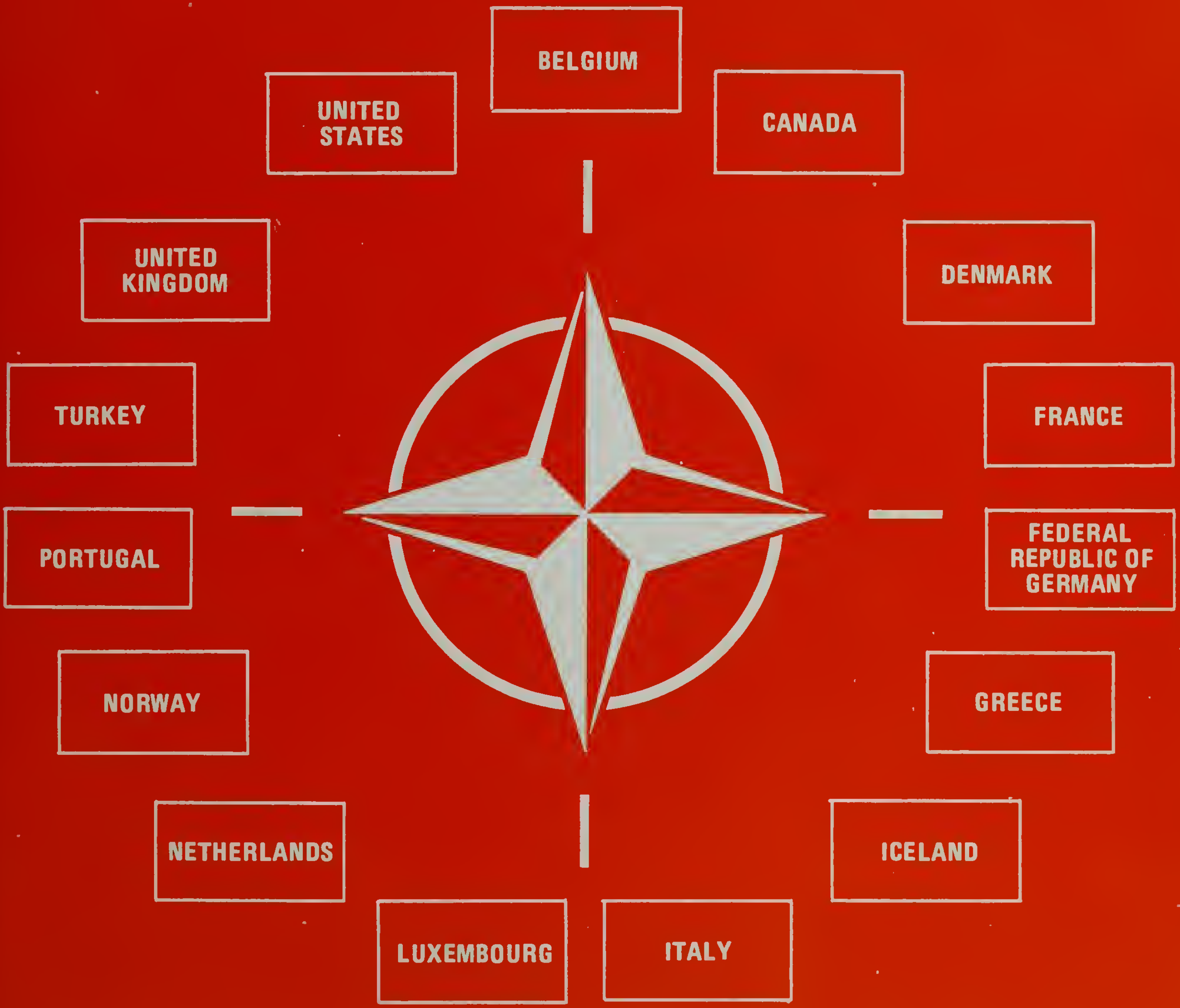

NATO: The Atlantic Alliance

October 1973

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Contributing artists for this issue are:
Mary L. Field and Orville O. Tonoda.

Shaping a Durable Peace

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The conditions of this decade require the United States to maintain substantial forces in Europe. In conditions of near strategic parity, a strong capability to defend with non-nuclear forces becomes increasingly important; the United States contributes about one-quarter of NATO's forces in Europe's vital central region, though our allies' proportionate share of forces in the entire European NATO area is far higher.

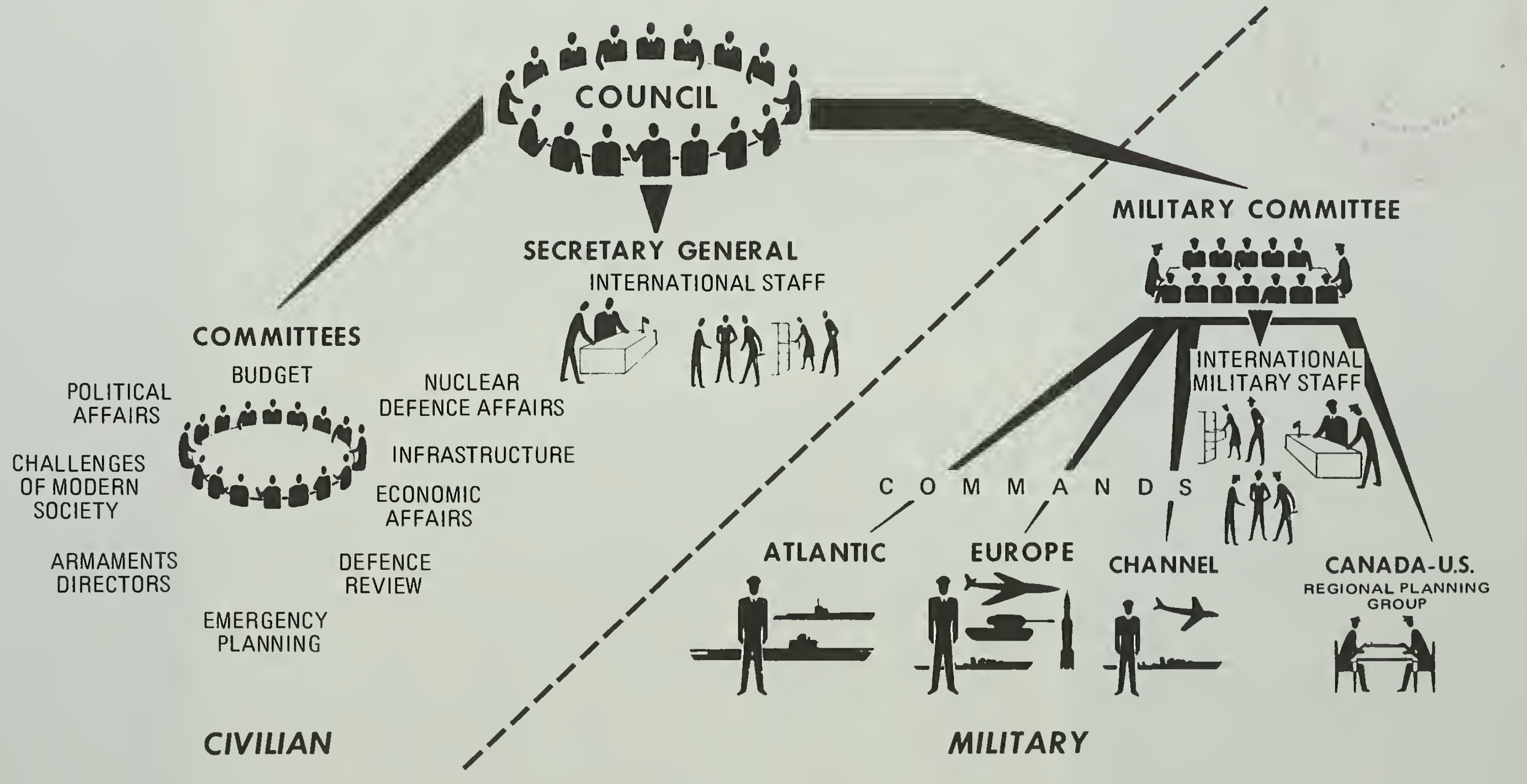
The balance of conventional forces in the center of Europe would be seriously upset by the unilateral withdrawal of a substantial number of U.S. forces. Unless our reductions were completely replaced by European forces, deterrence would be weakened. In the event of hostilities, a weaker conventional defense could confront the Alliance with the choice of either capitulating or using nuclear weapons immediately.

Defense cooperation within Europe may be a long-term alternative to the American troop contribution. But the prerequisite for such an alternative is a far greater degree of European political unity. Yet even if such unity develops, it is unlikely that the Europeans alone could maintain a strategic balance against the enormous nuclear power of the Soviet Union.

In short, disengaging our forces would risk serious instability in Europe, the consequences of greatly enhanced Soviet influence, and the dangerous implications of a greater reliance on nuclear weapons. If, on the other hand, we and our allies maintain our strength, we can contribute to political stability, reduce the likelihood of war, and conduct a credible diplomacy to negotiate a mutual reduction of forces.

We cannot enter serious negotiations if, at the outset, we or our allies allow our positions to weaken. I intend to maintain an effective American military contribution to the Alliance and to pursue negotiations for a mutual force reduction that will create a viable balance in which the incentives for attack are effectively eliminated.—*Richard M. Nixon (From the President's Report to Congress, May 3, 1973).*

How NATO Functions



NATO:

An Important Conventional Capability

NATO and Western European security are inevitably numbered among the permanent interests and commitments of the United States. What reasons are there to regard Western Europe as a permanent interest? The reasons, belatedly recognized in World Wars I and II, are surely well known. The hostile domination of Western Europe and the control of her vast resources would be a grave danger to the security of the United States. The loss of considerable U.S. investments and trading opportunities would bring about great economic harm, and the loss of Western Europe would cause an intolerable shrinkage in the area of freedom of the world. While the United States could perhaps survive isolated in the Western Hemisphere, it would survive in a way that would be quite disturbing to its citizens. The Nation would be isolated not through any choice of its own, but because of the decisions of others. There would no longer be a choice.

Why are conventional forces important to the preservation of this interest? U.S. troops are still in Europe, some 28 years after the end of World War II, *not* because the President wishes to incur the political costs of deploying major forces in Europe, *not* because of inertia or bad habit, *not* to save our European allies the trouble and expense of their own defense, *not* simply to maintain an American "presence," and *not* just to serve as a "trip-wire."

Conventional forces in Western Europe are important because:

- There is a large conventional threat. Whereas U.S. conventional forces are being reduced drastically below the June 1968 level, and even considerably below the June 1964 pre-Vietnam War level, there have been no such reductions in Soviet conventional forces. The forces deployed in Eastern Europe by the Soviet Union and its allies remain undiminished and, indeed, have been continuously strengthened. It would be highly imprudent to make decisions about U.S. forces in Europe without taking into full account Soviet military capabilities, pending the successful negotiation of limitations or reductions in the forces of *both* sides.
- The United States no longer has strategic nuclear predominance. NATO now more than ever needs a stalwart conventional capability

by James R. Schlesinger
Secretary of Defense

Condensed from a statement before the Subcommittee on Arms Control, International Law and Organization of the Senate Committee on Foreign Relations July 27, 1973.

in Europe. We no longer have that predominance in nuclear weapons which, at least through the 1950's, served to offset the Soviet Union's predominance in conventional ground forces. The Soviet Union has already achieved approximate parity with the United States in nuclear weapons. Thus, the relative weight of NATO's nuclear forces in the balance of deterrence has diminished, thereby placing a higher value on NATO's conventional capability.

- It is important the United States and its allies have options in responding to Soviet provocation. What we wish to ensure in our emphasis on NATO's conventional capability is that we have a range of options, a greater degree of flexibility in deterring and, if need be, in coping with a Warsaw Pact conventional attack. The way we are most likely to get engaged in a war with the Soviet Union is if it perceives a relative reluctance on the part of the NATO Alliance to use nuclear weapons, coupled with an opportunity, because of superior Soviet conventional predominance, to make a low-risk military move. We want to avoid placing ourselves in a position where our only viable option in the event of a major Warsaw Pact conventional attack is an early recourse to the use of nuclear weapons. I believe our allies share this concern.

Conventional Force Balance

Why do we believe conventional forces can provide a real option? There is now a very tenuous balance in the crucial Central Region of Europe. The Warsaw Pact forces opposite NATO are indeed formidable. They are geared for the offense while NATO is geared for the defense. The key offensive ground weapon is the tank, and the Warsaw Pact greatly outnumbers NATO in numbers of tanks. Indeed, the bulk of the Warsaw Pact ground forces consists of tank and motorized rifle divisions, heavily supported by artillery. These are precisely the kinds of forces needed for a rapid offensive.

NATO also has a very substantial military defensive capability. The facts, however, are that in this very sensitive Central Region the Warsaw Pact outnumbers NATO in deployed manpower—850,000 men to 750,000 men; in tanks, 14,000 to 6,000; and in aircraft, 2,800 to 2,700. Thus our military commanders in Western Europe cannot give great assurance that, in the event of a Soviet conventional attack, NATO forces could with certainty withstand the pressure. Neither can the Russian commanders, who look at the very substantial NATO forces, give great assurance to Moscow that they could break through. An attack would be a risky venture for the Warsaw Pact considering the NATO forces arrayed against them in the Central Region of Europe. Consequently, while the present NATO force structure is in place, there is a very limited temptation for the Warsaw Pact to move against Western Europe and, thus, there is now in Europe a fairly stable situation. We want to keep it that way.

While important improvements in NATO's conventional capability are clearly needed, the existing deficiencies can be met with limited additional efforts provided the NATO countries, including the United States, pursue truly complementary defense efforts, apply their resources to areas of greatest need, tailor their forces more precisely to the character of the

The 15 NATO Countries

Belgium
Canada
Denmark
France
Federal Republic of Germany
Greece
Iceland
Italy
Luxembourg
Netherlands
Norway
Portugal
Turkey
United Kingdom
United States

Warsaw Pact threat, and have the wisdom and the will to maintain a steady defense effort.

NATO Force Stability

Why are U.S. forces deployed in Europe important to this condition of stability? The 4⅓ U.S. Army divisions and supporting air forces contribute significantly to the conventional deterrent. Almost all U.S. ground forces are in the Central Region and comprise about one-sixth of the total NATO forces in this region. They, thus, represent a sizeable portion of the deterrent forces arrayed against the ready and reliable forces of the Soviet Union.

The U.S. forces contribute to the defense of two important sectors that couldn't be defended with fewer troops, and there are no other truly ready forces which could conceivably fill in the defenses in their absence. They would be vital—in the literal sense of that word—to an initial conventional defense. Were they to be withdrawn to the United States, they would not be available for the first critical days and weeks of defense against attack. Any significant withdrawal of these forces, without a commensurate withdrawal of Soviet forces deployed in Eastern Europe, would seriously weaken NATO's military posture in the Central Region.

Although U.S. forces in all of Europe constitute a relatively small proportion of the total NATO ground forces deployed there, the U.S. units are among the very best in manning, training and equipment. Their importance in the military balance is greater than their relative numbers might indicate.

Effect of Major Reductions

What is wrong with major reductions in U.S. forces? The answer is that such action would immediately weaken the NATO forces in the Central Region and upset the tenuous military balance that now exists there. It could lead to a gradual unraveling of the Atlantic Alliance and, in a period of lesser detente, the Soviet Union could be tempted by the more favorable conventional circumstances. A simple military "presence" is not enough, unless we are willing to lower the nuclear threshold and, perhaps, also encourage further nuclear proliferation.

Moreover, U.S. forces provide a clear and vital link to U.S. nuclear capabilities. The Soviet Union is a superpower with a substantial nuclear armory, and it would not be realistic for the United States to say to its allies they should look to their own defenses, and then expect the result would be a satisfactory one. The withdrawal of U.S. presence and support would be crippling.

U.S. Position in NATO

Contrary to the belief of some critics, the United States is not defending Europe. It is participating in a structure for the security of the Atlantic Alliance as a whole and, most immediately, for the security of the European Continent. Most of the deployed forces are supplied by U.S. allies—approximately 90 percent of the ground forces, 80 percent of the ships, and 75 percent of the aircraft. Of course, the United States would reinforce these numbers if there were a crisis, but the ready

Tanks of the 2d Armored Division prepare for counterattack during the maneuver phase of Reforger IV.

1st Infantry Division convoy near Mannheim, Germany, during Reforger IV NATO exercise.

forces are provided in large measure by U.S. allies.

From the vantage point of the Defense Department, I would like to see our NATO allies do more and we are now working within the Alliance to achieve that objective. But it should also be acknowledged that our NATO partners are, in fact, doing more than they have in the past. Allied defense budgets are up 30 percent from 1970, including sizeable additional planned increases in the British and German budgets for this year.

Moreover, the Federal Republic of Germany helps offset in significant ways the cost of our forces in Germany. The present offset agreement between the United States and Germany amounts to more than $2 billion for FY 1972–73. A new agreement is now under negotiation for the next period, and there is reason to believe it will be a good agreement from the U.S. point of view.

In addition, the European defense ministers, in June, agreed to examine the problem of finding additional multilateral means to neutralize the balance of payments costs that fall on the United States by reason of its stationing forces in Europe.

The possibility of more equitable sharing by other NATO countries of the support and logistic responsibilities now borne by the United States is one area that is undergoing close scrutiny.

Force Reduction Negotiations

All of this is not to say precisely the present level of U.S. forces in Europe is immutable. There will be negotiations with the Warsaw Pact on force reductions in Central Europe this fall. It is not unreasonable to assume these negotiations will, in fact, achieve a lower level of forces on both sides; after all, that is the purpose of the negotiations. It has been made clear to the other side that NATO is fully prepared to effect reductions which preserve the security of both East and West. But unilateral reductions in advance would greatly weaken our negotiating position and, depending on the size of the reductions, could seriously upset the military balance in Europe to NATO's disadvantage.

U.S. soldier performs maintenance on tank during Reforger IV NATO exercise.

Furthermore, a withdrawal of U.S. forces from Europe would not in itself permit, as some people anticipate, an equivalent reduction in our general purpose forces. Whether U.S. forces are stationed in Europe or the United States, this Nation must still be prepared to meet its obligations under the NATO Treaty. As noted earlier, U.S. general purpose forces are already being reduced considerably below the June 1964 pre-Vietnam War level. Nor would a withdrawal necessarily ease the problem of the defense budget. Indeed, assuring a position favorable to promptly redeploying those forces to Europe in an emergency could very well increase defense costs.

I do not believe a unilateral reduction of U.S. forces in Europe at this critical juncture would be wise. For the first time since the end of World War II, the Soviet Union has demonstrated a serious interest in easing the tension in Europe and in negotiating mutual force reductions. It would be foolhardy not to give this process, already so well begun, a chance to work itself out.

Moreover, withdrawal of a significant number of U.S. forces from Europe would place increasing pressures for similar force reductions on other NATO governments. The result could be a general unilateral reduction in NATO's conventional capabilities, leaving but one viable alternative to an initial conventional defense—an early recourse to the use of nuclear weapons. The U.S. political stake and the potential consequences for the Nation's security are much too high to accept the inevitable risks inherent in unilateral reductions. ☐

An Assessment of NATO and Warsaw Pact Force Capabilities

by Admiral Thomas H. Moorer, USN
Chairman
Joint Chiefs of Staff

Condensed from a statement before the House Foreign Affairs Committee July 11, 1973.

Europe has been at peace for the past quarter of a century largely due to the stabilizing influence of the North Atlantic Treaty Organization (NATO). Today, partially because of this considerable success, many Americans are calling for a major reduction in the U.S. military contribution to the NATO Alliance. They are asking legitimate questions and they deserve thoughtful and reasoned responses.

With world peace as our objective, we must continually search for the proper formulas to deter war. The events of the past year have given us new hope for a more peaceful world, but these notable developments could not have occurred without the credible military power of the United States. True detente requires a reduction in underlying political and economic sources of conflict, and an atmosphere free of force and the threat of force.

Until these fundamental changes have taken place, however, the view of the Joint Chiefs of Staff is that sufficient military power must be maintained to ensure the United States can negotiate by choice and not from coercion.

The fate of Western Europe is of vital importance to the security interests of the United States. Should the Soviet Union, or any other power antagonistic to our national interests, gain dominion over Western Europe, the very existence of this Nation would be threatened. NATO Europe, with its industrial, economic, technological, and military strength and potential, is second only to the United States in strategic importance in the Free World. Therefore, deterring an attack on Western Europe, at any level of conflict, and continuing to foster the will to resist Warsaw Pact coercion have a very high priority in U.S. military planning. Should deterrence fail, NATO forces must be able to halt the aggression firmly and swiftly. Their capability to do so is essential to the credibility of our deterrent and could well be the decisive factor in whether we have peace or war in Europe.

Since such fundamental issues are at stake, it is important not to risk serious instability in Europe at a time when mutual cooperation between East and West seems so close at hand. A sound military case can be made for resisting the urge to reduce U.S. Military Forces in Europe unilaterally while we continue to press for the ultimately more rewarding results obtained through Mutual and Balanced Force Reductions.

Military Capability of Warsaw Pact

It is important to fashion U.S. military forces to deal with the military capabilities of the Warsaw Pact nations rather than attempt to base our plans on their intentions. Modern weapons require many years of research, development and production before they are ready for deployment, but intentions can change overnight.

The bulk of the ground and air forces posing a potential threat to NATO is deployed opposite Central Europe. Naval forces could conduct supporting operations in the Baltic and Black Seas, interdict sea lines of communication in the North Atlantic, and conduct offensive operations against the U.S. Sixth Fleet and other NATO naval forces in the Mediterranean.

The major component of the Pact's quick-strike capability is the Soviet peripheral missile force. Nearly all Soviet peripheral missiles are deployed in the western USSR and there is good reason to believe they are intended for use against NATO.

Another portion of the strategic attack threat to NATO is the Soviet medium bomber force deployed in the western USSR. A large portion of this force is equipped with air-to-surface missiles; the remainder carries gravity bombs. Both are capable of delivering, and most likely are scheduled to deliver, conventional and nuclear weapons throughout Europe.

In the potential areas of Warsaw Pact operations, the ground forces are trained and equipped to conduct both nuclear and conventional warfare. The majority of the force is Soviet but the East Europeans also contribute significant forces. Support for the ground forces would be provided by air defense, ground attack, light bomber and reconnaissance aircraft. Many of the aircraft have dual capability, meaning they can be used in more than one role.

We believe the Soviet Union considers Central Europe to be the key to a military campaign against NATO. Although it certainly could be expected to strike into the northern and southern flanks, its largest combat force is opposite the Central Region of NATO. Of the more than 80 divisions there, the majority are Soviet. (A number of these divisions would require a period of mobilization before they could be considered combat ready). The rest are Polish, East German and Czechoslovak. Additionally, there are over 25 Soviet divisions in the western USSR that could be committed to the battle in Central Europe. Upon mobilization, these units could attain combat readiness within several weeks and move to reinforce the attack. The largest aviation force is allocated to this Central Region. Soviet concepts call for rapid movement across Europe by mobile armored and motorized rifle divisions in the wake of nuclear attack or saturation by conventional artillery fire.

Naval Capability

Most of the naval forces that the Warsaw Pact could employ against NATO are Soviet. The Soviet Northern Fleet, with its formidable submarine force, has the greatest strike capability. The Northern Fleet would probably undertake offensive operations against NATO naval forces in the Norwegian Sea, and could provide support for Pact ground operations in the area. The Soviet Baltic Fleet, supported by Polish and East German naval forces, probably would attempt to neutralize NATO naval forces in the Baltic while the Soviet Black Sea Fleet, augmented by the Romanian and Bulgarian Navies, probably would support Pact ground forces in an attempt to gain control of the Turkish Straits.

The Soviet Mediterranean Squadron is the most formidable and largest group of Soviet naval ships and submarines continuously deployed out of home waters and, together with the Black Sea Fleet, constitutes the primary naval threat against NATO's southern flank.

Soviet ballistic missile submarines with medium range missiles could be assigned targets in Western Europe. The Soviet Navy also has a medium bomber and air-to-surface missile force capable of striking NATO surface naval forces.

The capability of Soviet/Warsaw Pact forces as they exist today is significant. For the future, this capability will improve as a result of vigorous efforts to develop new weapon systems. The Soviet Army has great mobility and firepower now. New equipment and ammunition coming off production lines will make it even more powerful and the air threat will increase due to the introduction of new aircraft and weapon systems. New fighter aircraft are expected to enter the force which will enhance Soviet ground support capability.

Ongoing Soviet naval construction and modernization programs evidence qualitative improvements to platforms, weapon systems and sensors, with emphasis on antisubmarine multipurpose combatants. Consistent with these trends, the Soviet Union recently launched its first aircraft carrier, which will probably be V/STOL equipped.

While the Warsaw Pact military capabilities are indeed formidable, these forces do have significant weaknesses. As noted before, the equipment of the Pact forces is being continually modernized but a substantial portion of it, while still serviceable, is old. We believe, for example, NATO forces are still ahead in most of the technical R&D fields, but we must acknowledge this gap is closing.

The large peacetime ground force structure of the Soviet Union is only partially manned and requires augmentation from a reserve of trained individuals before it can be brought up to wartime strength. Thus a large number of divisions in the Soviet Union would require several weeks of mobilization to be ready for combat. In considering the military balance in Europe, it should be remembered the Soviet Union maintains a major commitment of military forces in its southeastern flank, facing the Peoples Republic of China. Nearly 25 percent of some 160 Soviet divisions and 4,500 tactical aircraft are so oriented. Also, it should be clear to everyone that a major NATO-Warsaw Pact conflict would involve the nations concerned in global warfare, not just in the European theater.

NATO-Warsaw Pact Balance in Europe

There are differing views of the military balance in Europe even among U.S. Government experts. The reason for this is that estimating the balance in Europe is by no means an exact science. It is complicated by:

- Incomplete data on the Warsaw Pact.
- Varying assumptions as to force availability on both sides.
- Analytical methods that are, at best, approximations of extremely complex battlefield interactions.
- The fact the outcome of a conflict may be heavily shaped by intangible and nonquantifiable factors, such as weather, warning time, combat readiness, leadership, etc.

The view of the NATO-Warsaw Pact balance presented here is based on the extensive military expertise and judgment of the U.S. military establishment.

Immediately available NATO forces include only those committed units physically present in the area in January 1973. French forces are not included because they are not committed to NATO. Also excluded, because they were not physically present in the area in January 1973, are the remaining dual-based ground and tactical air units held in the United States for prompt deployment to Europe in an emergency. RAF and USAF tactical aircraft stationed in the United Kingdom are included in this assessment, *i.e.*, in the Central Region, because these units were physically present in the European area in January 1973.

The Warsaw Pact forces include all active major combat surface ships, submarines and naval aircraft of the Soviet Northern, Baltic, and Black Sea Fleets, and similar units of the East European nations. Although not specifically included in this assessment, there are large numbers of small surface combatants that would pose a threat to NATO ships operating in nearby European waters. Tactical air forces include all of the East European active combat aircraft, the Soviet tactical aircraft deployed forward in Eastern Europe, and the

Soviet active tactical aircraft in the military districts of the USSR facing the NATO northern and southern flanks. Ground forces include only Soviet and East European combat-ready divisions in those same areas.

Except for the small Soviet ground and tactical air complements and the even smaller NATO ground and tactical air elements, the immediately available forces on the northern flank of Europe are naval. As indicated earlier, the bulk of the Warsaw Pact naval forces in this area belong to the Soviet Fleets. Except for a few U.S. patrol aircraft and an occasional destroyer, NATO naval forces in the area are European. Aside from periodic exercises, U.S. general purpose naval forces normally do not operate in those waters.

Overall, the balance of immediately available naval forces on the northern flank favors the Warsaw Pact. NATO has a somewhat larger number of major surface combatants, but the Warsaw Pact has a considerably greater number of submarines and naval aircraft. The naval forces on both sides, however, are quite large, reflecting the critical importance of this sea area for both NATO and the Warsaw Pact. The Soviet Northern and Baltic Fleet ships must transit this area to gain access to the North Atlantic, and NATO must control this area to maintain access to the United Kingdom and northern European ports.

On the southern flank, the balance of immediately available forces also favors the Warsaw Pact, at least in quantitative terms. NATO has a few more divisions than the Warsaw Pact, but the Warsaw Pact has more tactical aircraft, major surface combatants, and submarines, notwithstanding a substantial U.S. naval contribution in the Mediterranean. Here, again, most of the Warsaw Pact naval forces belong to the Soviet Fleets.

Mobilization Potential

Warsaw Pact land forces can be brought up to wartime strength very quickly and then moved into forward positions in a very short period of time. Moreover, the ground and air units located in the westernmost areas of the USSR also can be deployed forward in a relatively short period of time and, certainly with respect to ground forces, before U.S. reinforcements can be deployed to Europe. Consequently, the Warsaw Pact advantage in ground combat power would be even greater after a short period of mobilization. In terms of men in combatant units, however, the two sides would be more evenly matched. The Warsaw Pact would still maintain its advantage in tactical aircraft, but to a lesser degree, depending on the number of aircraft that would be deployed from the United States under the circumstances prevailing at the time.

After a short period of mobilization, the overall naval balance on the northern flank could be reversed to favor NATO. A large number of U.S. and Canadian surface ships and submarines could be deployed into the area, including a substantial number of U.S. attack carriers with embarked aircraft. Moreover, some additional surface ships and submarines could be made available by European allies. With these additions, NATO probably would be superior in major surface combatants and in naval aircraft. The Warsaw Pact, however, still would be superior in numbers of submarines and small surface combatants and, since they would be operating much closer to their shores, would be more accessible to their land-based aviation and sources of supply. On the other hand, from a technological point of view, the NATO forces are still considered superior to the Warsaw Pact forces in antisubmarine warfare.

On the southern flank, the Warsaw Pact, after a short period of mobilization, would be superior in ground divisions, but the two sides would be more closely matched in tactical aircraft. NATO would have a distinct advantage in naval forces, since additional allied ships would become available and more ships could be deployed from the United States.

Given a more extended period of mobilization, both the United States and the Soviet Union could introduce additional divisions to reinforce their deployed forces in Europe. It should be noted, however, that from a logistic standpoint, all USSR lines of communication to its forward areas would be overland and relatively short, while U.S. lines of communication would be long and over water.

Both sides, of course, could deploy their forces differently than assumed in this assessment, thereby changing the balance in one region at the expense of another. While NATO does have a conventional deterrent, the military balance in Europe, particularly in the Central Region, is tenuous as far as NATO is concerned. Further, the trend in relative strength between NATO and the Warsaw Pact is not encouraging. It is to reverse this trend that the United States is urging its allies to modernize and otherwise improve the combat readiness and survivability of their forces.

Prepositioned equipment awaits issue to Reforger IV units on NATO exercise in Germany.

U.S. Unilateral Military Reduction

Following almost directly from this appraisal of the NATO-Warsaw Pact military balance is the conclusion that any unilateral reduction of the U.S. military presence in Europe, without an appropriate accompanying reduction in Warsaw Pact forces, would be most unwise for the United States and the NATO Alliance. "Appropriate" reduction in Pact forces would require arrangements in a manner that would account for the distinct asymmetries in geography, numbers and offensive orientation that exist between the opposing forces in Europe.

In the face of rising defense costs, NATO governments, just like the U.S. Government, are finding it more and more difficult to maintain their armed forces at required levels of strength and technological capability. Two trends are creating pressure on their defense budgets. First, there is a diminishing sense of danger from military attack in Europe resulting from the conclusion that the Soviet detente strategy is a signal of interest. Therefore, a basic feeling of security, buttressed by the series of recent successful East-West negotiations, prevails in many NATO nations. Second, domestic demands on governmental goods and services are increasing steadily with the expanding NATO nation economies.

NATO nations have been doing very well during the past several years in improving the combat capabilities of their forces. Should the United States now undertake a unilateral force reduction in Europe, one of two conclusions could be reached by other NATO nations. They might *erroneously* conclude that the military threat from the Warsaw Pact is reduced, thus providing a rationale for reduction of their own NATO forces; or they might *erroneously* assume that the U.S. interest in Western European security is reduced which could cause individual nations to turn towards the Soviet Union. In either case, the net effect would be destabilizing to the current power balance in Western Europe.

On this basis, it follows that an uncompensated unilateral force reduction would put NATO at an increasing disadvantage versus unreduced and improving Warsaw Pact forces. The military effect of this would be to lower the credibility of the NATO conventional deterrent in the eyes of the Warsaw Pact. To wish for deterrence is not enough; the capability for a successful defense is necessary or the deterrent will fail. With a less credible deterrent, prospects for an attack increase. Should an attack occur, prospects for a successful conventional defense are lessened. Then, in a deteriorating conventional warfare situation, prospects for a forced resort to nuclear weapons to halt enemy advances are increased.

Therefore, unilateral reductions in the U.S. military presence in Europe should not be made without appropriate accompanying reductions in Warsaw Pact forces. To reduce U.S. forces unilaterally not only would remove the incentive for the Warsaw Pact to seek mutual reductions in the Mutual and Balanced Force Reduction forum, but would have substantial adverse military effects on the United States and the NATO Alliance. ☐

ISA Develops NATO Policy for DOD

The international impact of the North Atlantic Treaty Organization is reflected within the Defense Department by the functional responsibilities assigned to the Office of the Assistant Secretary of Defense (International Security Affairs) [OASD(ISA)].

As the political-military advisor to the Secretary of Defense on international programs, the Assistant Secretary of Defense (International Security Affairs) must ensure his recommendations are coordinated with the DOD components, Office of the Joint Chiefs of Staff, Deptment of State and representatives of United States missions to international organizations and conferences so as to provide a consolidated position upon which the Secretary of Defense can act.

As the functions of the Assistant Secretary of Defense (International Security Affairs) are not confined to NATO, the specific responsibility for developing and coordinating DOD European and NATO policies falls to the Deputy Assistant Secretary of Defense for European and NATO Affairs. This is where the basic groundwork is accomplished in the evaluation of proposed plans, positions, policies and programs affecting DOD.

by Robert C. Hill
Assistant Secretary of Defense
(International Security Affairs)
Mr. Hill has previously served as Ambassador
to Costa Rica, El Salvador, Mexico and Spain.

Dealing on a daily basis with the U.S. Mission to NATO (USNATO) in Brussels, Belgium, helps considerably in resolving the problems that arise at NATO Council sessions and provides to the U.S. Ambassador to NATO, as head of the U.S. Mission, an update of Defense Department positions.

However, as the U.S. Ambassador reports directly to the Secretary of State, all message communication between the U.S. Government and the U.S. Mission to NATO is transmitted by the Department of State, always with the closest coordination between interested Government departments and agencies prior to the transmission of instructions on security policy. Customarily, all messages from the U.S. Mission to NATO which deal with security matters are dually addressed to the Secretary of State and the Secretary of Defense.

On the staff of the U.S. Ambassador to NATO is the Defense Advisor, an appointee of the Secretary of Defense, who assists the Ambassador in coordinating defense oriented plans and programs and is responsible for DOD participation in NATO security matters. The Defense Advisor's staff works in areas of defense interest to the Atlantic Alliance such as nuclear planning, defense operations and planning, infrastructure, armaments and communications-electronics. These specialists flesh out and implement the NATO security programs of interest to DOD by providing U.S. representation to the many NATO working and planning groups.

NATO Photo

Donald Rumsfeld
U.S. Ambassador to NATO

Joseph Luns
Secretary General of NATO

The U.S. Ambassador is also the U.S. Permanent Representative to NATO and, as such, participates in the daily activities of the North Atlantic Council (NAC) and the Defense Planning Committee (DPC). When matters arise in NAC or DPC on which the Ambassador does not have a U.S. position or instructions, he requests guidance from Washington. When defense matters are involved, the Assistant Secretary of Defense (International Security Affairs) determines DOD policy and coordinates a response within DOD, the Department of State and other interested Government agencies.

In everyday practice, U.S. policies, positions and procedures evolve from a continuous series of message and telephonic communications among staff members of the State Department, OASD(ISA), Office of the Joint Chiefs of Staff and the Defense Advisor in Brussels.

As an example of how the system works, a member of the International Military Staff at NATO Headquarters might originate a study on a particular military problem facing NATO. When the study is completed, usually after inputs are received from the military missions at NATO Headquarters, the problem is presented to the NATO Military Committee for consideration in permanent session. At that point, the U.S. Delegate to the Military Committee, a senior officer responsible to the Chairman of the Joint Chiefs of Staff, requests guidance. A message response with a decision and proposed guidance is developed by the Joint Staff and coordinated with the Office of the Deputy Assistant Secretary of Defense (European and NATO Affairs). This action ensures the position the United States takes in the NATO Military Committee is compatible with the position taken by the U.S. Permanent Representative to the NATO Defense Planning Committee.

When the NATO Military Committee determines its position on the matter, it is submitted to the Defense Planning Committee in permanent session. The U.S. Mission to NATO studies the problem and prepares its recommendation, along with a request for further guidance, to the Secretaries of Defense and State. At this point, the political aspects of the problem must be considered before a final position is determined and presented to NATO. After thorough review by the Office of the Assistant Secretary of Defense (International Security Affairs) and the State Department, a decision is reached and the Secretary of State informs the U.S. Ambassador to NATO of the position to take in future discussions with the other permanent representatives. If the subject under discussion is extremely controversial it may take several sessions of the Defense Planning Committee to resolve. If the DPC does not resolve the issue it may be referred for decision to the semi-annual DPC meetings in ministerial session which are attended by all NATO Ministers of Defense, the Secretary of Defense, the Assistant Secretary of Defense (ISA) and several staff members. At these meetings the NATO members attempt to resolve existing differences they may have with the problems that have been deferred to the DPC. The final agreement, then, becomes the NATO position.

Summary

To sum up, then, the Assistant Secretary of Defense (International Security Affairs) has the responsibility to coordinate the position of the United States on defense matters pertaining to the Atlantic Alliance with other U.S. agencies and ensure the position is properly presented in the appropriate NATO forum.

The established close working relationships among OASD(ISA), the Joint Staff, the Military Services, the Department of State and the U.S. Mission to NATO are used continuously to strengthen the U.S. contribution to NATO while encouraging the member countries to maintain and strengthen their defenses in the face of rising pressures for detente with the Warsaw Pact countries. ☐

Allied Command Atlantic Faces Increased Soviet Maritime Capability in NATO Area

The North Atlantic Treaty Organization is the protective shield in Europe that has permitted a generation of Free World growth and enrichment of which all NATO nations can be proud. In many instances, individual national policies have been subordinated or pooled to reinforce the goals of the Atlantic Alliance to achieve results which would not have been possible had the nations acted separately.

As NATO moves through the 1970's, it is faced with a very different set of parameters than those that confronted the Alliance in the 1950's. Perhaps most dramatic is the significant shift in the military naval balance between the Warsaw Pact forces and those of the allied powers. In the 1950's, allied navies enjoyed supremacy at sea—all seas. Today this is no longer true as the Soviets have gone to sea.

The challenge faced by the Allied Command Atlantic (ACLANT), along with NATO's other two major military commands (Allied Command Europe and the Channel Command), calls for varied and diverse types of operations while contributing to the protective maritime posture of the defensive alliance:

- Protection of the transatlantic sea-lane for the reinforcement of military forces in Europe.
- Deployment of the Striking Fleet in naval, air and amphibious support of the Supreme Allied Commander Europe (SACEUR).
- Defense of national territory, including island territories, against all threats and especially the strategic ballistic missile threat posed by Soviet Yankee and Delta class submarines.
- Maintenance of control of the sea as necessary for normal resupply of Europe.

NATO's strategy for the Atlantic recognizes the lifelines of the West are contained in the Atlantic basin. There is no strategic alternative to this geographic fact. It is imperative that NATO be able to control the critical Atlantic sea areas and the air space above if NATO is to maintain its credible deterrence.

The Soviets have not overlooked this strategic

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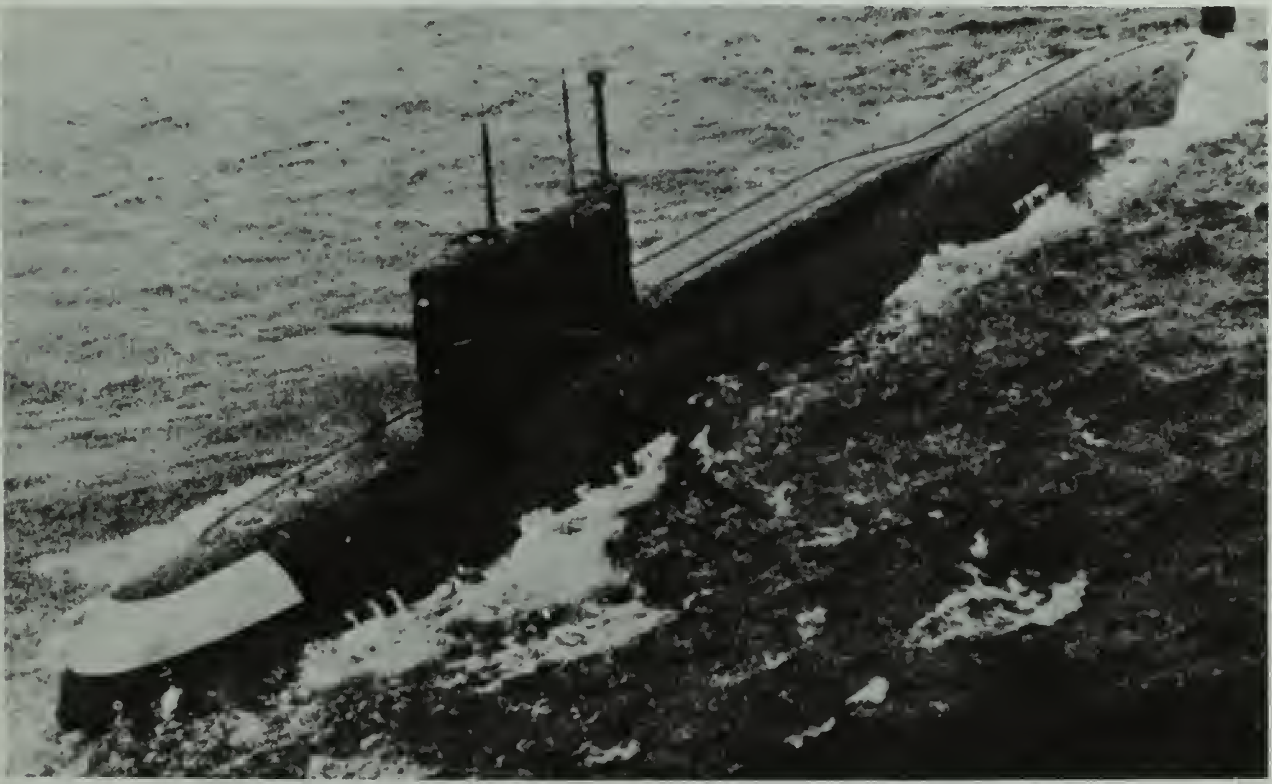
fact. For the first time since World War II, maritime control of the Atlantic is no longer the sole prerogative of the NATO nations. The Soviets are challenging and, moreover, the challenge is worldwide.

Soviet Naval Strength

A massive submarine force forms the principal element of Soviet naval strength. The large number of torpedo attack submarines has been of considerable concern to the Alliance and particularly to the Allied Command Atlantic. An even more potent threat to NATO naval forces manifests itself in the relatively recent Soviet addition of the Charlie class cruise missile submarine. The Yankee class ballistic missile submarine represents the Soviet's predominant naval strategic strike weapon system. More than 30 are currently in commission. The latest Soviet addition in the strategic field is the Delta class submarine, fitted with a missile that has a range in excess of 4,000 nautical miles. The Delta submarine provides the Soviets with a capability to strike NATO targets from positions far removed from the ACLANT area of responsibility.

Nor have the Soviets neglected their surface fleet. Modern and extremely well equipped surface ships are much in evidence. The Krivak, a general purpose destroyer, has been at sea for just over two years and is as formidable as any surface ship of equivalent size and type produced anywhere in the world. Her main offensive armament consists of four anti-ship missiles. Her defensive suit is equally impressive with two complete surface-to-air missile systems and a modern sonar outfit (including variable depth sonar) backed with torpedoes and anti-submarine warfare rocket projectiles. These systems, along with two 76mm gun mounts and a chaff decoy system, provide the Krivak with a capability to defend herself in all three mediums of air, surface and subsurface. Even more formidable is the Kara class cruiser, a warship of about 10,000 tons. The first of this class was deployed to the Mediterranean this year. She carries twice the number of surface and anti-



Soviet Yankee class nuclear powered ballistic missile submarine.

Soviet Krivak class guided missile destroyer.

submarine warfare missile systems as the Krivak and has an integral helicopter capability.

Afloat air support, long a deficiency in Soviet naval capabilities, will soon become a reality. The Kiev, an aircraft carrier of about 45,000 tons, is under construction and is expected to become operational by late 1975. Indications are that she will be capable of carrying vertical and short take off aircraft as well as helicopters. Sister ships are anticipated. Helicopter carriers, such as the Moskva and Leningrad capable of operating a large detachment of helicopters, became operational in 1967.

To complement their drive for a balanced naval force, the Soviets are rapidly developing a limited out-of-area replenishment capability. The Boris Chilikin, a naval replenishment oiler, is comparable to modern western fleet tankers. To round out the entire maritime picture, it should be noted the Soviets have the largest fishing and oceanographic research fleets in the world. Moreover their merchant fleet is expanding at a dramatic pace. All such ships are centrally controlled from Moscow and form an important element of Soviet seapower. This facet of overall Soviet capabilities was most amply demonstrated during rescue operations in February 1972 involving a damaged Hotel II class nuclear power submarine. No less than 23 ships became involved. Ships initially dispatched to the scene were from the Soviet merchant and fishing fleets. They were followed by combatants from the Soviet Northern, Baltic and Black Sea Fleets.

The essential ingredients of a first class Soviet naval power are all present today. And the future, from the Soviet naval strategist's point of view, must look just as bright. In the past five years increased Soviet spending on research and development increased 60 percent, and is forecast to increase further by 5 to 10 percent annually. One might then surmise it is not magic but money that is the source of the Soviet naval revolution.

Stronger NATO Deterrent

The implications of the Soviet naval buildup

Soviet helicopter carrier Moskva.

are most vivid. If the Atlantic Alliance lacks the forces to deter the Soviets at sea, the whole concept of NATO as a maritime alliance will cease to exist. It is hardly necessary to outline the consequences.

The balance between NATO and Soviet naval forces raises the fundamental question of whether or not the nations of the Alliance are willing to bear the costs of modern sea power in the strength necessary to assure the free use of the seas for the Alliance.

The positive recommendations for action to strengthen NATO forces, taken by the ministers of the member nations in December 1970 with their approval of the report titled "Allied Defense in the Seventies (AD–70)," were encouraging. However, actions being taken are seriously inadequate considering Soviet naval capabilities and the declining strength of Allied forces. Many efforts which the NATO nations indicated would be undertaken have been delayed for accomplishment in future years. Some will not be undertaken at all.

Standardization Key to Improvement

In addition to the question of force capability, equally important areas for further emphasis are mutual research, development and common production of standardized equipment. Although some progress has been made toward achieving commonality in NATO defense forces, it is not of the magnitude desirable or deemed prudent and necessary. There is an urgency for getting on with the concept of compatibility of defense weapons and equipment used by the NATO nations. Standardized equipment is of paramount importance so nations of the Alliance can do things together rather than separately.

Concerning NATO maritime forces, the problems induced by the lack of standardization can be illustrated by taking note of the ships of destroyer size or larger that could be made available to the Alliance in times of tension or crisis. Among these ships there are 100 distinct classes in service. There are some 36 different gun and missile fire control radars, each with its own support system. There are about 40 types of guns of 30mm or larger and, consequently, approximately 40 different sizes of ammunition to be manufactured, the distribution of which is a problem in itself.

Substantial modernization of NATO forces is in order and a way must be found to combat the waste implicit in such a proliferation of types. As work proceeds in NATO's efforts towards modernization of the maritime forces, no opportunity should be spared to harmonize efforts to achieve improved and standardized capabilities at reduced cost.

There are other areas of almost equal sensitivity, such as the astronomical rise in the cost of military hardware. The advances made by the Soviet Union, despite increased costs, should encourage the Atlantic Alliance to proceed, posthaste, to modernize and strengthen its defense forces in the most economical manner to meet the current challenge. Substantial and important progress is possible; however, any modernization projects must have applicability to at least several nations and proceed on a fixed timetable.

Dynamic cooperation in fields of research, development, production and standardization must occur if NATO is to remain a credible deterrent. It will take heroic efforts to overcome all well-known factors which inhibit progress in this area, but necessity calls for just such measures—more so today than ever before. □

American liberty is a religion. It is a thing of the spirit. It is an aspiration on the part of the people for not alone a free life, but a better life; . . .

—Wendell Wilkie

NATO Military Committee

The peacetime responsibility for recommending measures for the defense of the NATO area falls to the NATO Military Committee, the highest military authority in the North Atlantic Treaty Organization.

The history of the Military Committee began with the establishment of NATO itself. Two days before the North Atlantic Treaty was signed on April 4, 1949, a working group began to formulate recommendations for the establishment of agencies the treaty organization would require for successful operation. The report of this group was approved by the NATO foreign ministers, sitting as members of the North Atlantic Council, at their first session on September 7, 1949. The working group recommended "the military organization should include a Military Committee (composed of one military representative of each country, preferably a Chief of Staff). . . ." During its first session, the North Atlantic Council created a Defence Committee, to consist of the NATO defence ministers, which convened October 5, 1949, and promptly established the NATO Military Committee which held its first session the next day in Washington, D.C.

Composed of the Chief of Staff of each member nation except France and Iceland, the Committee meets twice a year, or more often if necessary, at either the NATO Headquarters or at one of the member countries. (France is represented by a military mission and Iceland, with no military forces, may be represented by a civilian.)

To ensure continuous functioning of the NATO Military Committee, each nation appoints a military representative of its Chief of Staff as a member of the Military Committee in Permanent Session located in the NATO Headquarters complex. The United States representative is General T. R. Milton, USAF, who had previously served as Vice Director of the International Military Staff and Deputy Chairman of the Committee.

General Milton

The position of president of the Committee rotates annually on July 1 and is offered to the next NATO nation in order of the English alphabet. The current president is Admiral of the Fleet Sir Peter Hill-Norton, Royal Navy, Chief of the (United Kingdom) Defence Staff.

The chairman of the Committee is elected for a two-year term and presides at the meetings in Chiefs of Staff and regular permanent sessions. General Johannes Steinhoff, German Air Force, the current chairman, is assisted by Vice Admiral Charles A. Minter Jr., USN, the deputy chairman, who also has special responsibility for nuclear matters, and Mutual and Balanced Forced Reductions (MBFR).

Fourteen NATO military agencies serve under the authority of the Military Committee and include the Military Agency for Standardization, Advisory Group for Aerospace Research and Development, NATO Defence College and several communications agencies. ☐

Cooperative Logistic Programs Strengthen NATO Forces, Increased Effort Needed

by Donald S. Cuffe
Director for International Programs
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The North Atlantic Treaty Organization (NATO), with the United States as a participating nation, is engaged in many activities supported by the logistic efforts of the Department of Defense.

Not only does DOD provide defense equipment to NATO countries on a reimbursable basis, it also participates in such cooperative functions as storage and issue, maintenance, rebuild, spare parts support, joint production arrangements and joint work on logistic systems and procedures.

Cooperative programs covering a wide range of logistic support services for defense material have been developed during the years the Atlantic Alliance has been in existence. While many truly remarkable accomplishments have been achieved, they represent only a fraction of the potential. This article will describe some of the current cooperative NATO logistic support programs of DOD and discuss the necessity for increased cooperation with the NATO nations.

Maintenance and Supply

One example of NATO logistic cooperation is the NATO Maintenance and Supply Organization (NAMSO), which is designed to combine requirements of several countries into a single package. NAMSO's functions include procurement of spare parts to support certain equipment held by two or more NATO nations, inventory management, contract maintenance, storage and issue, and calibration services.

NAMSO policy and guidance is set by a board of directors with representation from each NATO nation. The operational aspects of NAMSO are handled by the NATO Maintenance and Supply Agency.

NATO defense equipment being supported by NAMSO includes such items as the Nike missile system, Honest John rocket, the F–104G aircraft, the Sidewinder air-to-air missile, the Mark 37 and Mark 44 torpedoes, and certain communications/electronic equipment. NAMSO is now in the process of assuming supply responsibilities for the NATO Hawk missile systems and the NATO Air Defense Ground Environment complex. Total value of supplies and services provided by NAMSO in 1972 was over $90 million and should reach about $150 million annually by 1975.

Agreements for NAMSO support of a given system can be as complex as recent proposals to have NAMSO assume support responsibility for items of U.S. origin and, at the same time, establish in Europe the capability to produce the needed spare parts and components. This potential enhancement of European self-sufficiency must be evaluated in each case against the potential impact on the U.S. peacetime and mobilization production base, cost effectiveness of the production and economic factors inherent in the U.S. balance of payments deficit.

NAMSO, as well as the various NATO nations, continually seeks new areas in which its logistic services will provide more efficient and less costly support of common systems. Currently, studies are underway concerning assumption of support for the M–113 family of vehicles and for the Lance missile system being considered for procurement by a number of NATO countries. The organization is also studying the economics of assuming service functions such as the redistribution of excess end items and ammunition among the NATO countries.

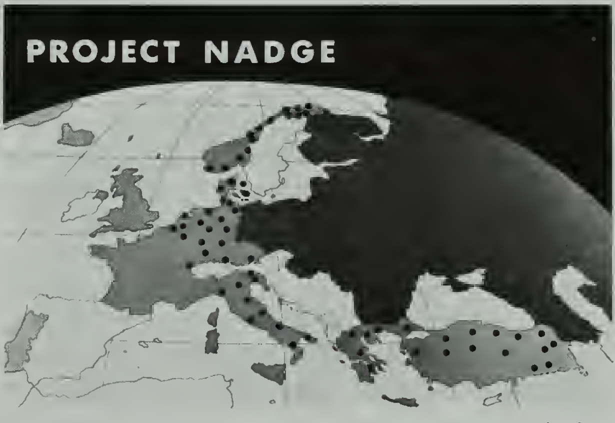
In the early days of NAMSO, there was serious doubt whether or not such a multilateral logistic organization, manned and managed by people from many nations, could operate efficiently and effectively. In 1962 and 1963, there were serious problems in the organization and disbandment was considered. The countries felt, however, the potential benefits were worthwhile and NAMSO was reorganized and realigned with a modern computerized system. The result is a strong, growing organization that is saving money and manpower, and is proving that multilateral logistic cooperation will work and can be beneficial to the NATO countries.

An agreement strengthening wartime logistic arrangements between the United States, German and Canadian forces is signed by (from left) Major General Juerg von Kalckreuth, Commanding General of the Territorial Kommando Sued; General Michael S. Davison, USAREUR and Seventh Army Commander in Chief and Commander of the Central Army Group; and Major General W. C. Leonard, Commander of the Canadian Forces Europe. The ceremony was held at Heidelberg, Germany, Feb. 1, 1973.

Air Defense

The NATO Air Defense Ground Environment (NADGE) improvement program involves semi-automation and integration of the prime early warning and air defense control sites of national systems into a composite air defense control system tied together by automatic data links. It includes updating existing radars, improving electronic countermeasures, installing new radars and integrating NATO air defense systems such as aircraft and surface-to-air missiles. The improvement program is providing 84 semi-automated sites with a fast reaction, computer controlled system which ties together the air defense function as a shield in the manner of an arc from the northern reaches of Norway to the eastern frontiers of Turkey. It is multilaterally funded in the amount of $308 million of which the U.S. share is $95 million, nearly 31 percent.

An industrial consortium was formed to handle the procurement, production and installation of the system. Contracts were executed with the nine host nations for the complete new system and are monitored and controlled by a central NADGE Management Office representing the governments of the NATO countries. This massive cooperative undertaking was not free of problems. For example, the industrial consortium was instructed to place contracts for production, installation, etc., in each participating country equal to each one's financial contribution to the program. In the case of the United States, with a share of $95



NATO Photo

Electronic defense project participation (Europe).

NATO Photo

NADGE plotters at work in Denmark control center.

NATO Photo

A NICS terminal control and switching center.

million, a formula had to be developed to allow the consortium to get competitive prices and quality products while adhering to established guidelines of plus or minus 5 percent. This was a solution to balance of payments and fair sharing, but was contrary to NATO criteria of awarding contracts to the lowest responsible bidder and contributed to some cost escalation and contracting problems.

The current NADGE implementation schedule provides for completion of construction at all 84 sites before the end of 1973 when the system should be fully operational. A logistic challenge being faced by NATO supply experts is the follow-on support of the NADGE system. This responsibility is being placed, in large part, with NAMSO, but each nation is responsible for making its own support arrangements.

Integrated Communications

Similar to NADGE, the NATO Integrated Communication System (NICS) is another effort now underway to establish and control an integrated long haul communications system in NATO to provide adequate capacity and responsiveness for command and control in peacetime and in emergency or war conditions. It does not include tactical communications.

NICS is programmed to cost $300 million over a 5-year period, with the U.S. share amounting to $87 million or 29 percent. Established in 1971, issues soon arose concerning production sharing and logistic support. In this instance, an arrangement was developed for sharing production wherein the United States is guaranteed a share of 38 percent ($114 million), with 42 percent going to the other participating nations and 20 percent not designated. This provides some flexibility that was not available in NADGE. Plans for follow-on logistic support of NICS are only in the formative stages.

Standardization

In the field of standardization of NATO military materiel, it is recognized logistic support is much easier and considerably less costly if the various nations use items that are interchangeable. NATO has a Military Agency for Standardization (MAS) that has standardized some items essential to interoperability of the forces. The most difficult area has been in defense equipment and weapon systems where there is an absolute myriad of makes and models.

Some standardization has been accomplished by the countries purchasing military materiel from one particular nation, and a broad base for logistic cooperation has been achieved through cooperative production of a common item required by several countries. An example is the Hawk missile system. Originally developed and produced in the United States, it was selected for production in Europe by a consortium composed of the United States, France, Germany, the Netherlands, Greece, Denmark and Italy. Benefits to the Alliance included a greatly improved air defense capability with a standard system and, in turn, cost savings through common logistic support.

However, common production and procurement, with the resulting benefits of standardization and reduced costs for logistic support, have been very limited. Past programs were the F–104G aircraft, NATO maritime patrol aircraft, Sidewinder and Bullpup missiles, Mark 44 torpedo and the TOW antitank weapon. Current programs include the NATO Seasparrow missiles, multi-role combat aircraft, and a NATO hydrofoil patrol craft.

Armaments Directors Conference

To promote additional cooperation in research, development, procurement, production and logistic support of defense equipment, NATO established a Conference of National Armaments Directors (CNAD). The country representatives of CNAD are the senior armaments directors from each nation. The U.S. representatives are the Director of Defense Research and Engineering for research and development, and the Assistant Secretary of Defense (Installations and Logistics) for armaments procurement, production and logistic support. Representation from other NATO countries is at a similar level. Under the CNAD are Army, Navy and Air Force Armaments Groups and a Defense Research Group.

The United States has appropriate representation on these groups and it is here that work is done on specific areas of cooperation. Proposals made by these groups are considered by the CNAD, and decisions are made concerning actual establishment of cooperative research, development or production projects. In this regard, the CNAD provides a medium for fairly prompt, top level consideration of proposed cooperation projects, and a forum to evaluate and resolve problems and constraints that inhibit cooperation. Despite the recognized benefits as illustrated by the Hawk and other prior programs, CNAD progress has been disappointingly slow.

Industrial Advisory Group

In 1968, the CNAD decided NATO's efforts to promote cooperation in armaments research, development and production might be enhanced by obtaining advice and counsel from senior industrialists in NATO countries. As a result, the NATO Industrial Advisory Group (NIAG) was formed and has been meeting twice a year. Its objective is to provide a forum for the exchange of views on industrial ramifications of NATO armaments questions, foster a deeper feeling of international industrial involvement in research, development, production and logistics, and create closer ties among industrialists of the member countries. NIAG recommendations are presented to the CNAD as views independent of those of their respective governments.

The senior NIAG members have established a number of technical subgroups to develop inputs into specific technical areas. The major project presently being undertaken by the NIAG is to analyze and recommend to the CNAD ways in which industry could best organize itself to assist NATO governments in maintaining an effective air defense capability. Other areas currently under study are advanced approach and landing systems, battlefield surveillance, and acquisition of surface targets without the use of radar.

Civil Emergency Planning

Another area of NATO logistic activity is Civil Emergency Planning (CEP). CEP embraces the entire field of resource mobilization and management in emergencies and, for this reason, it can make a significant contribution to the defensive capabilities of the Atlantic Alliance. Peacetime planning for emergency use of resources is designed to facilitate Alliance-wide decisions concerning the use of resources for both military and civil support in the event of an attack against NATO.

Transportation (surface, air and sea), energy, food and industrial products are among the resource areas in which planning is being undertaken. Effective CEP has the obvious collateral value of tending to reduce peacetime military costs by permitting military authorities to rely on civil support in areas where it might otherwise be necessary for the military to provide its own organic capability.

In recognition of this important function, NATO has a Senior Civil Emergency Planning Committee, a planning body for such functions as ocean shipping and inland transport in time of emergency. There are also NATO civil wartime agencies to provide a structure for management of scarce resources during a war involving NATO nations.

Plans for Increased Effort

In January 1972, senior logisticians from each of the NATO countries met in Brussels in what was labeled a NATO Exploratory Conference on Production Logistics. The purpose of the conference was to discuss the effectiveness of logistic support within the Alliance through increased cooperation and specifically identify areas from which some real benefits could be derived. Study groups were set up to explore the following areas:

- Improved coordination and cooperation among NATO production and logistic organizations and project steering committees.
- Establishment of clearer demarcation between the activities of the Military Agency for Standardization and the Conference of National Armaments Directors, and development of a program of priorities in standardization, giving particular emphasis to types and characteristics of materiel affecting operational capabilities, *i.e.*, areas where compatibility, interoperability and interchangeability are most urgent.
- Development of a NATO check list to guide procurement authorities on points to consider in drafting contracts, *e.g.*, contract provisions to ensure adequate supply and maintenance support at a reasonable price, at least during an initial period of service; and to ensure the availability of adequate manufacturing data (including drawings and specifications) to enable manufacture and maintenance by other than the design contractor in appropriate circumstances.
- Arrangements for the interchange of information and experience on cooperative procurement and production programs and projects to avoid schedule slippages and cost overruns that may have been experienced in prior efforts.
- Establishment of a check list of logistic requirements arising in connection with defense systems programs beginning with the conceptual stage.
- Ways of harmonizing logistic policies and procedures with a view to facilitating greater cooperation in the areas of echelon of maintenance and related stockage, possibilities of greater use of central agencies, centralized stockage concepts and compatibility of supply procedures.
- Ensuring effective configuration control of defense systems.
- Work sharing to achieve equitable return among participating countries.

Advancements Made

Thus it can be seen, from the examples cited here, that NATO has taken many steps to lessen the impact of divergent logistic considerations. The formation of a variety of organizations and study groups has enabled NATO to solve many of its logistic problems. Although progress has been slow, continuing advancements have been made in many areas. These efforts are necessary to resolve the remaining differences and formulate additional standards, policies and procedures in support of the Atlantic Alliance.

Many opportunities for the advancement of logistical support within the Alliance have been lost because of the major differences of each country's support system. Hopefully, the national armaments directors and the senior logisticians from each of the NATO countries will accelerate the work to develop methods to resolve the remaining critical logistic problems and the growing cost of logistic support of NATO forces. □

Achieving NATO Military Communications Interoperability

Progress is Complex and Challenging

When military forces of two or more nations become engaged in combined operations, interoperability of their respective organic communication systems for the voice of command is of paramount importance to the success of the mission. Historically, liaison detachments with equipment were exchanged between national forces and information was passed either orally or by record copy between individuals. Modern warfare, with its requirements for mobility, short reaction times and the use of automated sensor and weapon systems, has not only placed a high demand for interoperability and automation on U.S. communication systems, it has also placed a similar demand on the interface with systems of allied countries. The mere fact that adjacent or intermingled forces happen to be of different nationalities does not militate against the need for automated information transfer without liaison detachments in real time.

by Maj. Gen. Harold A. Kissinger, USA
Director
Joint Tactical Communications Office (TRI-TAC)
OASD (Telecommunications)

The tactical forces committed to NATO are those of the individual nations and each has its own organic communications equipment provided nationally. Forces of different nationalities could find themselves in adjacent roles or at different echelons in the same force structure and possibly intermingled in the same geographical area. In addition, NATO has an international military command structure headed by the Military Committee with subordinate echelons down to the tactical forces that are under national command. The international command structure has its own communication systems that must be able to interconnect with national military systems. In this instance the communication systems are NATO-owned or a collective "good" of the North Atlantic Alliance bought and paid for by the Alliance out of common funds provided by the member nations.

How then is this military need for interoperability being addressed and to what extent has it or is it being achieved? To appreciate the approaches that have been undertaken and the *raison d'etre* for organizational entities that have been set up to address the matter, one must have a basic understanding of the political and economic factors that constrain the permissive environment in which the solution to the military problem must be found. As one might suspect political and economic considerations easily overcome the simplistic view that a solution to a common military problem should not be too difficult to achieve.

Political and Economic Considerations

NATO is not a supranational entity. It is an alliance of sovereign states, each having an equal voice. Decisions are taken under the unanimity rule. On the other side of the coin, there is considerable disparity among nations as to geographical size, population, resources and economic wealth that is recognized in the allocation of contributions to the common or infrastructure funds.

Payments for international defense, as in the case of national defense, are a form of taxation. In NATO, as with the United Nations, formulae for calculating national shares are based on the commonly accepted doctrine of "capacity to pay" as contrasted to "capacity to benefit." Benefits are difficult to quantify since they are not only economic but also political and even philosophical. However, each nation attaches a certain significance to the prospective benefits and reflects this importance at the negotiating table.

From a purely economic viewpoint, one might assume that allied nations, faced with the economic burden of stocking their respective arsenals, would promote cooperative or joint ventures to share the investment cost of research and development to benefit from the comparative advantage that individual nations might enjoy in specific areas and to realize economies of scale through production sharing. Even though NATO promotes the joint venture, national sensitivities frequently make this a time-consuming and complex process. Some realities that contribute to the inherent lack of economies of non-sharing are:

- Concern over balance of payments.
- Real or imaginary fears of promoting technological gaps.
- Procedural complexities of negotiating international agreements that protect patent rights and proprietary information and limit sale or transfer of information or equipment to third parties.
- Unwillingness to share management decisions that could affect national defense.
- Political influence of national industries that regard sharing as a loss of business.

Other economic factors that tend to inhibit international agreements as well as militate against cooperative ventures are the size and state of obsolescence of existing national inventories, the sunk costs of national research and development programs that have been pursued and different rates of modernization of national civil communication systems with which defense systems must interoperate.

Technological Considerations

Rather than delve into technological considerations too deeply, it should suffice to say digital communications are the wave of the future for both military and civil communications. The supporting digital technology is well in hand. The greatest inhibiting factor for the military is the existing analog inventory from which an economic transition must be made. Despite this fact of life, the pressure to convert military communications is extremely high because of the increasing demands for data transmission and communication security.

On the civil side, existing inventory also demands a slower transition. Unfortunately, the national civil systems of the European member nations of NATO are planning their conversion at a slower rate than the United States. The result is an adverse impact on current system architectural planning.

Current Activities

The current system architectural planning and interoperability coordination activities of NATO can be divided into the two general categories identified earlier in this article: systems owned by the Alliance and the organic tactical system of the individual nations.

The need for modernization of the international communication systems has led NATO to an approved concept for an integrated system that will satisfy the communication requirements for both political consultation among governments of the member nations and military command and control down to the national tactical forces. In a sense it is analogous to the U.S. non-tactical military communication systems. This NATO Integrated Communication System (NICS), similar to the U.S. Defense Communication System, is constrained to the maximum possible use of leased civil facilities in the interest of economy.

To develop the system concept into an actual system architecture and to manage the subsequent system acquisition, an internationally staffed NATO Integrated Communication System Management Agency (NICSMA) has been created. The NATO Joint Communications-Electronics Committee, the highest communications-electronics body in the NATO structure, has been established to provide policy direction and national points of view to NICSMA. The U.S. principal assigned to the Committee is the Assistant Secretary of Defense (Telecommunications). The United States has also placed a small group of professionals in the U.S. Defense Communications Office that is collocated with NICSMA. Its principal mission is to solve interface problems to facilitate interoperability and compatibility between NICS and U.S. defense communications.

NICSMA enjoys an advantage of an international staff to engineer its system architecture while, in the tactical arena, each of the NATO nations has its own system architectural activity with only periodic coordination among them. The Agency, however, is faced with a delicate balancing feat. It must satisfy immediate needs for automation and improved survivability over that of existing systems. It is faced with pressures to provide an initial digital capability which satisfies demands for cost effective security and avoids fielding obsolescent technology during the period when the leased civil facilities, with analog technology, cannot handle the needed digital transmissions. There are also a host of peripheral management problems with which it must cope in a politico-economic environment. Although the jury is still out, the caliber of professional personnel being assigned to NICSMA by the member nations, the high level of policy direction being given and the dedicated effort connote a reasonable assurance of success in this difficult venture.

From the standpoint of organic tactical equipment, NATO does provide forums to exchange views on requirements and equipment/system approaches. The purpose is to promote standardization and, in the case of communications, at least interoperability. Through these forums NATO is now putting the finishing touches on interface standards that will permit automated interoperability among the different national systems that will exist in the 1975 time frame.

The approach taken has been to define common standards or parameters at a hypothetical international interface point. In that way each nation will have to produce only the interface box to match its system to the international parameters, rather than having to produce interface boxes for each possible system with which it might have to interoperate. This approach also avoids the arguments as to which system should produce the matching parameters to the other.

Although this interface solution does provide automatic interoperability, it still requires liaison detachments from the organizational echelon responsible for the communications link to the other. It also lacks operational flexibilities that are required. However, it is a major step forward that required considerable effort and goodwill, since nations tend to promote their own parameters for the international boundary.

In the NATO forums concerned with interoperability it has long been recognized that to get common system parameters for future systems, the agreements have to be reached before nations commit to hardware, even in the development phase. Because of this, preliminary discussions on digital parameters have been encouraged and held for some time. Here again is an example of the type of difficulty that is encountered. Nations are willing to discuss various aspects of a problem but are, of necessity, unwilling to commit themselves until they have completed their homework and have a decided preference on a specific matter. It is also not unusual to have subsets of nations within the Alliance that collaborate for their common good. This is encouraged if for no other reason than to reduce the number of opinions at the NATO table.

European Defense Improvement Program

Several years ago as a result of the Nixon Doctrine which encouraged European nations to improve their own defense posture, the defense ministers of most of the western European nations formed an organization called EUROGROUP that started a program titled, "The European Defense Improvement Program." EUROGROUP, in turn, chartered a subordinate element called EUROCOM to address tactical communications.

EUROCOM set about its work and in approximately one year produced and subscribed to a set of basic system parameters for digital communications. One of these parameters, channel bit rate, is fundamental to both digital communications and to interoperability. In this instance EUROCOM chose to follow the 75×2^n series which was considered a natural consistency with low speed data devices that had been used for years.

In the meantime in the United States, the Joint Tactical Communications Office (TRI–TAC) had been formed as an element of the Office of the Secretary of Defense under the staff supervision of the Assistant Secretary of Defense (Telecommunications), with the responsibility for tactical system architecture to assure, among other things, interoperability among the U.S. Military Services. After considerable study in a collaborative effort by the Military Services, the Office of the Joint Chiefs of Staff, the Defense Communications Agency, the National Security Agency and the TRI–TAC Office, it was concluded U.S. digital defense communications should follow a channel bit rate in the 8000N series rather than 75×2^n.

This conclusion was predicated on advances in the technology of analog to digital conversion of voice, frequency spectrum conservation in the crowded combat net radio VHF band, and consistency with the direction being taken by civil networks with which defense networks must interoperate.

Here then was a fundamental dichotomy between the EUROCOM and U.S. positions. The Assistant Secretary of Defense (Telecommunications) notified NATO of the U.S. study efforts and the initial conclusions in November 1972. EUROCOM expressed a natural concern and requested a meeting to explore the underlying rationale. After several discussions EUROCOM, in a gesture of good will, understanding and a strong desire to achieve future interoperability, agreed to the new bit rate series. This was possible by virtue of the timely exchange of information prior to commitment to hardware. EUROCOM also requested the United States continue bilateral working group discussions with it on other system parameters affecting interoperability. The United States agreed and those discussions are in process. NATO itself encourages this activity because it portends faster progress and should facilitate ultimate agreements in the more formal NATO forum.

Commonality Necessary

The charter responsibilities of the Joint Tactical Communications Office (TRI–TAC), in addition to the U.S. tactical system architectural responsibility, includes the achieving of interoperability with U.S. allies. To this end the TRI–TAC staff has been participating actively in both the NATO forum and the bilateral discussions with EUROCOM in an attempt to achieve as much commonality of parameters as possible for future digital communications. Divergencies that are allowed to continue now will persist for many years to come.

Managing of disparate programs which lead to common or interoperable communications systems is a major and complex undertaking. Yet, it is an essential one to ensure the United States and its allies the provision of the voice of command in a common military or political undertaking. ☐

ACKNOWLEDGMENT: The author is grateful to John H. Faherty Jr., TRI-TAC Assistant for Allied Affairs, for his contributions to this article.

Shhhhh! NATO Secrets!

Safeguarding Classified Information

Classified information is by nature most intimately related to our national defense. Just as U.S. defense interests extend beyond our national boundaries, so must the use of the U.S. classified information which furthers those interests.

As a member of the North Atlantic Treaty Organization (NATO), the United States shares a mutual defense interest with the 14 other countries of NATO. The United States is a major contributor of classified information to NATO to assist that organization in carrying out its responsibilities. This release of classified information is by no means one-sided. Other NATO member countries also contribute their classified information to NATO to further their own defense efforts, and various headquarters elements of NATO generate classified information which is shared with the United States. These transfers of classified information should be regarded as exchanges prompted by expected and frequently realized mutual benefits.

by Herbert Lewis
Special Asst. for International Security
to DASD (Security Policy)
OASD (Comptroller)

All of the classified information contributed to NATO by the United States and the other member countries or generated by NATO itself may be circulated, in accordance with the need-to-know principle and without reference to the originator, within NATO or to other international organizations of NATO nations specifically designated by the North Atlantic Council. It should be emphasized, however, the information itself remains the property of the originator and may not be given to any non-NATO nation or to any other international organization, unless the organization is both composed of NATO nations and designated by the originator, or with the consent of the originator.

NATO was created because of a recognized need for a common defense effort on the part of the participating nations. A common defense effort implies a sharing by the participants of classified defense information. Security instructions have been issued by NATO setting forth specific provisions for the protection of classified information placed in the organization.

The special practices of the NATO security system constitute a rather formally structured system which provides reasonable assurance of protection for the classified information entrusted to it. These practices include the provision for:

- Transmission of NATO classified information through registry channels.
- Special clearances for access both in member countries and in the international elements of NATO.
- Annual inspections by each country of its own security system, and by the NATO Office of Security of each country and each international element's security system for safeguarding NATO classified information.
- Separate maintenance and protection of NATO information within each member country in accordance with the NATO security instructions.

National Security Authority

NATO security instructions require that each member nation designate a National Security Authority who will be responsible for the security of all classified information of the treaty organization within each respective national jurisdiction.

In the United States, the Secretary of Defense has been designated as the National Security Authority for NATO Affairs. This authority, except for a few particulars, has been delegated to the Deputy Assistant Secretary of Defense (Security Policy), located in the Office of the Assistant Secretary of Defense (Comptroller).

The U.S. National Security Authority has responsibility for the security of all treaty organization classified information within the United States. He is required to promulgate security instructions to implement the security instructions of NATO. These instructions for safeguarding classified information are effective throughout the Executive Branch of the Government. The instructions are drafted by the Office of the Deputy Assistant Secretary of Defense (Security Policy) and implementing procedures are signed by the Secretary or the Deputy Secretary of Defense.

The Deputy Assistant Secretary of Defense (Security Policy), acting for the National Security Authority, is responsible for coordinating and presenting the U.S. position on measures affecting the protection of classified information within NATO. He must, as far as possible, ensure that the international organization has adequate and comparable rules to protect U.S. and other participating nations classified information without impeding recipients.

Classified Information Registry

NATO has a registry system for the transmission of its own classified information. The system is designed to provide accountability for sensitive information and to restrict access to properly cleared persons. Each participating nation and major element of NATO must maintain a NATO Central Registry and a network of similar transmission units called subregistries and control points. Except for material sent to U.S. contractors, all NATO classified information is transmitted within the United States through registry channels.

In the United States, the focal point is the Central United States Registry (CUSR), operated by the Office of The Adjutant General, Department of the Army, as executive agent for the U.S. National Security Authority for NATO Affairs. The Deputy Assistant Secretary of Defense (Security Policy) has the responsibility for staff supervision and inspection of the CUSR.

The CUSR establishes subregistries and control points as needed by the various departments and agencies of the Executive Branch. It should be emphasized that, while the CUSR establishes subregistries and control points, the operation and control of the latter is the responsibility of the departments and agencies in which they are established. The CUSR does, however, conduct an annual inspection of most U.S. subregistries worldwide to ensure compliance with the instructions of the U.S. Security Authority. Excepted are the subregistries in U.S. embassies outside the United States which are inspected by the Department of State. At the present time, the Executive Branch maintains 88 Cosmic subregistries and 30 NATO Control Points directly under the CUSR.

Classification Categories

The United States releases a limited amount of Restricted Data and Formerly Restricted Data to NATO. This information is subject to even stricter control than other classified information of the same classification level. NATO has a separate registry system for its receipts and transmissions, and each registry, subregistry and control point in the system must maintain access lists of persons authorized to receive this information. In addition, the Defense Department and the Atomic Energy Commission conduct inspections of NATO elements and NATO member nations holding such information. U.S. Restricted Data and Formerly Restricted Data released to NATO is referred to in NATO as ATOMAL information. At the present time, the Executive Branch maintains 59 ATOMAL subregistries and 115 ATOMAL control points.

The security instructions issued by NATO cover all of the aspects of a modern day system for safeguarding classified information. Like most of the NATO member countries, there are four classification categories, Cosmic Top Secret, Secret, Confidential and Restricted.

Release Controls

With certain very limited exceptions, NATO classified information and material can only be released to a national of a member country. Within a member country access is granted a national thereof on a need-to-know basis, after a personnel security clearance has been granted in the category required. A favorable background investigation is required for all personnel, military or civilian, as a basis for a Cosmic Top Secret clearance, and a national records check is required for any of the other three categories. The components of the background investigation and the national records check, and the criteria to be used as guidelines in evaluating the results of the investigations, are very similar to those used in the Department of Defense.

Access is granted to personnel employed at the international headquarters of NATO or at major NATO military commands, such as the Allied Command Europe (ACE), on the basis of a Security Clearance Certificate for Access to NATO Classified Information issued by the particular member country of which each is a national. Likewise, the provisions for physical security and the preparation, reproduction, transmission and destruction of NATO classified information compare favorably with the requirements established for the Department of Defense.

In the area of classification management, however, the NATO security instructions need to be refined. One reason for this is, in large measure, that the same situation exists in most of the member countries. There are no automatic downgrading and declassification procedures for NATO classified information. The responsibility for correctly classifying documents and for subsequent downgrading and declassification rests exclusively with the originating NATO nations, commands or agencies. They are supposed to keep under constant review all documents which they have originated to ensure the original security classification still applies or, wherever possible, to downgrade or declassify.

This discretionary system is under review for improvement to prevent the NATO security system from being overloaded with documents with contents no longer requiring their original degree of classification. The seriousness of the problem has been recognized by the Deputy Assistant Secretary of Defense (Security Policy), who has initiated action in the NATO Security Committee establishing a work group to review the present classification management system within NATO and recommend appropriate changes for adoption.

Vulnerability to Espionage

NATO has been and continues to be a major espionage target. Despite this, the recent history of significant espionage activities within the international elements which have been exposed compares favorably with the history of similar activities against the security of major members of NATO. The last case which resulted in a high degree of damage to both NATO and national interests was that of an employee at NATO Headquarters, who was taken in custody by the Belgian Security Service on suspicion of espionage on August 6, 1969, subsequently tried, found guilty and sentenced to a long prison term.

The exposure of this case stimulated a very thorough review of all of the security measures being taken at NATO Headquarters and resulted in a number of recommendations to improve them. A member of the Office of the Deputy Assistant Secretary of Defense (Secu-

(please turn to page 62, col. 1.)

To NATO Nations

Electronic Warfare Equipment Sales Procedures Outlined

NATO nations in the process of developing a viable electronic warfare (EW) capability have been offered assistance by the United States to include the release of EW information, data and equipment for purchase by a requesting NATO country.

Purchase procedures by the requesting nation follow certain guidelines inherent in U.S. Government foreign sales procedures which are generally divided into two categories, *i.e.*, foreign military sales and commercial munitions sales. Both procedures, although not complex, can be confusing if not fully understood by the contractor and the purchaser.

Foreign Military Sales

Foreign military sales, often called government to government contracts, are military equipment sale transactions between countries. The requesting country originates the request for the specific item, or information pertaining to the item, by contacting the cognizant Military Advisory Assistance Group (MAAG) or Defense Attache Office (DAO), by a diplomatic note to the State Department, or an official communication to the Defense Department. The same general procedures are applicable to other logistic support elements or training assistance requests.

by Lt. Col. Robert R. Sheahan, USMC
Electronic Warfare Division
Office of the Joint Chiefs of Staff

If the request is made in the field, the MAAG or DAO evaluates the request, determines a justification and forwards the request to the cognizant U.S. Military Service(s) or the U.S. Commander in Chief, Europe, (USCINCEUR). Included in the request is an assessment of the existing EW capability and technical EW capacity within the requesting country.

Routine requests may be forwarded directly to the cognizant Military Service(s) while informing USCINCEUR of the request. Requests having significant political or military implication must be forwarded to USCINCEUR for processing, where they will be reviewed together with the MAAG or DAO assessment to determine the request's feasibility. Additionally, and of equal importance, an assessment of the current threat to the requesting country will be made by USCINCEUR to ensure the request meshes with the entire EW capability development program. In cases where the request is not considered appropriate, it will be forwarded to the cognizant Military Service(s) with pertinent USCINCEUR comment. In cases where two or more Services are involved, USCINCEUR will forward the request to both Services for action and keep the Joint Chiefs of Staff (JSC) informed of the progress of significant programs.

The Service receiving the request for approval through USCINCEUR will contact U.S. defense contractor(s), if appropriate, and obtain a planning price and availability listing for purchase of EW equipment. If the Service can fulfill the requirement from its own inventory, it will do so in accordance with existing regulations.

In certain cases the requesting country may elect to transact a foreign military sale through its embassy in the United States. In these cases the embassy will contact the cognizant Service directly which, in turn, will follow the previously described procedures. Additionally, the Service must alert USCINCEUR concerning the transaction and, when appropriate, obtain USCINCEUR endorsement based on the threat assessment and overall justification prior to completing contract action.

After receiving the estimated prices, determination is made through liaison with the requesting country whether or not the prices appear tentatively agreeable. Then, an offer and acceptance form (DD 1513) is prepared by the cognizant Service in coordination with the contractor, where applicable. The completed form is forwarded consecutively to the Defense Security Assistance Agency (DSAA) in the Office of the Assistant Secretary of Defense (International Security Affairs), the JCS, other Military Services and other appropriate agencies for review and acceptance.

If the request contains overtones of a sensitive political-military nature, DSAA will ensure coordination with the State Department. If the request is an item contained within the NATO Electronic Warfare Equipment Catalog (MC 131) such a notation should be placed on the DD 1513.

After coordination with all agencies and departments is completed, the cognizant Service contacts the concerned MAAG or DAO and informs USCINCEUR. If the embassy route is being used by the requesting country, the Service will contact the embassy directly and inform USCINCEUR of the action. Once accepted by the requesting country and signed, the contract becomes binding on both governments.

To emphasize certain salient features of a foreign military sales contract, the U.S. Government will:

- Agree to deliver and pass title to the item to the purchaser at the initial point of shipment unless otherwise specified under "point of delivery."
- Price items or services procured at their total cost to the U.S. Government.
- Notify the purchaser of any situation which might change the cost of the items or services by more than 10 percent.
- Endeavor to deliver items or render services for the amount and at the time quoted.
- Reserve the right to cancel the contract (all or part) at any time prior to delivery and bear cost of termination.

The purchasing country will:

- Agree to forward with its acceptance a check payable in dollars to the United States in the amount shown on the DD Form 1513, unless different terms are specified.
- Submit shipping instructions for items along with acceptance of DD Form 1513.
- Reserve the right to cancel the contract (all or part) at any time prior to delivery and the purchasing country will bear costs of cancellation.
- Agree not to transfer title to, or possession of, the items, components, or associated support material unless the written consent of the U.S. Government has first been obtained.

Commercial Munitions Sales

Commercial munitions sales, often known as U.S. contractor to requesting country sales, are direct transactions between the requesting country and the U.S. contractor regarding munitions sales. Contacts are made initially between the requesting country and the U.S. contractor on a direct basis.

The requesting country normally seeks out the contractor regarding a specific EW munitions item desired. Immediately upon establishing contact, the contractor will request authority from the Munitions Control Office, Department of State, to discuss the requested item with the country representative. Conjunctively, the contractor receiving the request should contact the cognizant Military Service, advise that an EW transaction is being considered and seek appropriate assistance. The Services will advise the cognizant MAAG or DAO and USCINCEUR when significant transactions are involved and request their appropriate assistance. The contractor will furnish a planning price and availability listing to the requesting country. If price agreement is reached, subject to munitions control approval, a purchase order will be signed by the country representative and the U.S. contractor.

The previously described procedure is known as a munitions control case during processing, and becomes the license for export at the time of completion. If it is anticipated to be a complicated case, a preliminary letter request for an advisory policy opinion can be made by the contractor. The Munitions Control Office will furnish a "no objection in principle" letter when the desired munitions transaction will most likely be looked upon favorably. The "no objection in principle" letter is not binding on the U.S. Government, purchaser, or the contractor but does provide an insight to the prospective munitions control case.

If the munitions request is unclassified and not abnormal, the license for export can be issued at once by the Munitions Control Office. An example might be an unclassified munition spare parts request. If the request was in context with a routine number of such parts being exported, the license would be issued without further checking. If it were a much larger order, an inquiry would be made to the Defense Department concerning the nature of the change.

Electronic warfare equipment is almost 100-percent classified. As such, the Munitions Control Office will automatically and thoroughly check a munitions control license request for EW equipment. The Strategic Trade and Disclosure Directorate of the Office of the Assistant Secretary of Defense (International Security Affairs) contacts JCS, the cognizant Military Service, other interested Military Services, the Director of Defense Research and Engineering (DDR&E) and other agencies, as applicable, to determine the total impact of the request. Once cleared by the Strategic Trade and Disclosure Directorate, the license request is returned to the State Department.

Under the current system, it will be most advantageous for the cognizant Service to include on the *commodity line* of the license request, if appropriate, the fact the item is contained in the NATO EW Equipment Catalog (MC 131). This will greatly expedite the processing of the request.

In addition to the license request by the contractor, all items of purchase over $50,000 automatically require a copy of the contractor-purchaser purchase order. This order is forwarded to the Munitions Control Office and forms a part of the munitions case package. Additionally, a consignee-purchaser transaction statement must be completed and delivered to the Munitions Control Office 90 days after contract. This statement attests that the:

- Purchase contract is as stated.

- Purchaser will not authorize re-export or other disposition of the purchaser commodities without written permission from the U.S. Government.

Once cleared by other interested departments, the State Department Munitions Control Office approves the munitions control case, resolves the export license arrangement, and turns the case over to the cognizant Defense Contract Administration Services Region (DCASR) office of the Defense Supply Agency for execution. DCASR, through a contractor plant representative (Military Service representative where appropriate), monitors the fulfillment of the contract through the export phase. As the requesting country (purchaser) receives the equipment, the DCASR or the contractor plant representative, if available, should keep the cognizant MAAG or DAO and USCINCEUR informed.

The previously discussed procedures for processing either electronic warfare foreign military sales or commercial sales provide general guidance to assist contractors and Government agencies alike. Changes to these procedures will be made periodically in keeping with overall program improvement. □

Senate Bill Proposes Revamping U.S. Military Aid Program

For many years reports by the Senate Committee on Foreign Relations have been replete with criticism of both the economic and military aid programs. Each year the Committee has nibbled at the fringes of foreign aid policy but to date has failed to bring about significant changes. As long ago as 1965, the Committee voted to liquidate the existing program and proposed machinery for coming up with a new approach to foreign aid. That effort, like so many others since, was unacceptable to the House of Representatives.

In report after report on foreign aid legislation, the Senate Committee has called for a new look for foreign aid. In 1968 it said: ". . . the committee is persuaded that the United States cannot longer postpone giving priority to putting its own house in order. Over both the foreign and domestic problems of the United States hang the fiscal and balance-of-payments crises which have been alleviated but not solved, and which fundamentally result from overcommitment, both at home and abroad, and from efforts to spread available resources too thinly."

In 1969 the Committee again warned: "The future of foreign aid is bleak indeed until a new program can be developed which will command greater respect and support, both with the public and the Congress, than the current program commands."

In the last year and a half, the Senate has rejected two foreign aid bills. No foreign military aid authorization bill was enacted for FY 1973. The Executive Branch, however, succeeded in getting Congress to provide the money for the foreign aid program although no regular authorization or appropriation bills were passed, notwithstanding a provision of law which states that appropriations for foreign aid cannot be spent unless there is a valid authorization. The aid program—like old man river—keeps on rolling along.

Review of Foreign Aid Results

In Korea, with one-man rule, 20 years after the end of the war there, we still maintain 40,000 troops at a cost of $600 million annually. In addition, we pay out $150 million or more a year for the South Korean armed forces. This is a country with an army far larger than, and a population twice that of, North Korea.

Only recently the Greek government said that it no longer wanted any U.S. military grant aid, after learning that it would soon be phased out. But its decision came only after the U.S. Navy began homeporting many ships there—a decision which will earn Greece more dollars than the value of our grant aid, hardly the way to cut down the expense to the American taxpayer.

It is the same story wherever you look. On

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by Senator J. W. Fulbright (D.-Ark.)
Chairman
Senate Foreign Relations Committee

Adapted from a statement by Senator Fulbright on introduction of Senate Bill 1443 to revise the Foreign Military Aid and Sales Program, April 3, 1973. The language of the Bill appears on pages S6421-6432 of the April 3, 1973, *Congressional Record—Senate.*

Taiwan, the United States continues to funnel tens of millions of the taxpayers' money into its military establishment, long after the policy justifying that aid was abandoned. Even though the old policy has been discarded, its manifestations live on in the form of a 165-man U.S. military advisory mission on Taiwan and a $103 million program of military grants and credit sales in FY 1973.

Now it appears that in South Vietnam, Executive Branch officials are planning a rerun of the Korean experience, minus U.S. uniformed forces.

By the end of FY 1973, the U.S. taxpayers provided $180 billion in assistance to foreign countries since the end of World War II, $80 billion of that in military and related aid. That flow of military aid will continue unless Congress acts to make the nations of the world look to their own resources—not to the United States—for the setting of their defense priorities.

U.S. Financial Status

Sixty-five percent of our administrative budget goes for war-related expenses. Seven percent of our gross national product (GNP), a vastly imprecise measure of our wealth at best, is spent for military purposes. And some $5 billion per year is spent on military and related foreign aid. Contrast this with Japan which spends less than 1 percent of GNP for military purposes and has no military aid clients. Our NATO allies spent, on the average, about 4 percent of GNP for defense while the cost of U.S. forces committed to NATO now runs about $17 billion a year. Wherever you look the rich nations expect the United States to subsidize their defense. For example, why cannot our prosperous NATO allies, instead of the American taxpayer, support Turkey's armed forces or pay for the rental of Britain's naval base at Malta. It is only because of the American Government's long-standing habit of reaching for the check.

The financial house of the United States is in disorder largely due to the accumulated effects of many years of overcommitment abroad. The U.S. Government's zealous determination to control and shape the destinies of much of the world has brought the Nation to a state of financial exhaustion. Since 1965, the Federal debt has increased by $150 billion, interest on the debt has doubled, the defense budget is up by 50 percent and the cost of living by 36 percent. The statistical picture is bleak.

For too many years we have lived beyond our means abroad, maintaining vast military forces and bases, lending and giving away our resources, and watching complacently while those we aided seized our markets. The $50 billion balance of payments deficit our Nation has incurred over the last three years is directly related to overcommitments abroad and the lessening of world confidence in the ability of the United States to put its house in order. Military operations abroad alone account for a $5 billion drain each year on our balance of payments. In 1971 the U.S. trade deficit amounted to $2 billion, the first time in this century. In 1972, that deficit rose to $6.4 billion.

Dollar holdings of foreigners now total over $80 billion and our official reserves are less than $14 billion. Unless we restore the integrity of the dollar, these excess dollars will, in future years, be a mightier weapon against our country than any army, air force or navy.

Senate Bill 1443

Revamping the military aid program will be one small step to stem this outflow. Senate Bill 1443 [introduced by Senator Fulbright on April 3, 1973] proposes to phase out military grant assistance over a 2-year period and permit loans on concessional terms for the countries being phased out. It would, thus, implement the philosophy expressed in the Peterson Commission report that "more should be done to enable these countries to estimate their own requirements, to relate them to their budgetary priorities, and to make their military decisions in the light of available resources . . . moving military assistance from a grant to a credit basis also will serve this purpose. Unlike military grants, military credits are subject to the budgetary discipline of the receiving country."

To ensure this budgetary discipline during the phase-out period, the bill requires a 50-percent payment in foreign currency for grant aid which will be available to meet U.S. expenditures within the country. The United States is now spending dollars at the rate of $375 million a year in the 10 countries which are the top recipients of military grant aid. In

FY 1973 those countries received $580 million in military grant aid, including excess arms and equipment. The new bill, thus, requires true burden sharing.

The bill (S. 1443) would phase out all military aid missions over a 2-year period and, in the interim, require that a foreign country pay 50 percent of the operating costs of the mission. This also implements a recommendation of the Peterson Commission, ". . . that U.S. military missions and advisory groups should be consolidated with other elements in our overseas mission as soon as possible." The Senate Foreign Relations Committee endorsed this position two years ago.

The bill also ends funding of military aid to Vietnam and Laos from the Defense Department budget, as the Committee has recommended since 1971. Now that U.S. involvement in the hostilities has formally ended, there is no reason to treat these two countries any differently from other aid recipients.

This bill also requires that all transfers of Naval vessels be under the authority of the new act, ending the existing practice where ships could be furnished to foreign governments under a number of different authorities, thereby carrying out a recent recommendation by the General Accounting Office.

As to surplus arms and equipment, the bill requires that this material be used to the maximum extent possible to save U.S. tax dollars and stop the abuses revealed in a recent General Accounting Office study of this program.

Military credit sales to the underdeveloped countries would be financed to the maximum extent possible through the guaranty of commercial bank loans, thus cutting down the amount of tax dollars tied up on loans. The prohibition on Export-Import Bank loans to finance arms sales to the developing countries would be removed. But Export-Import loans could not be covered under the guaranty program; the Bank's normal credit criteria would still apply. A fixed ceiling would continue on total credit sales allowed to these countries, as under existing law. Interest rates on direct loans, other than those for the phase-out grant recipients, would be at the rate charged by the Export-Import Bank for comparable loans.

The ultimate objective of S. 1443 is to get the State and Defense Departments out of the arms sales business and get these transactions back to a free enterprise, commercial basis, where they belong.

This bill also authorizes all grant aid and supporting assistance on a country-by-country basis, thus ending the situation where the President had complete freedom to allocate the lump sums Congress provided.

However, the bill does not include supporting assistance or military aid for the nations of Indochina. It would be premature for Congress to authorize any additional foreign aid for these countries since the President has not submitted his recommendations for postwar programs in that area. It would, however, permit continued delivery of aid in the pipeline and food aid under the provisions of Public Law 480.

The control of the Secretary of State over military aid and sales matters is enhanced by providing that appropriations be made directly to him.

Merging Grant Aid and Foreign Sales

The bill completely rewrites the Foreign Military Sales Act and the military aid and supporting assistance provisions of the Foreign Assistance Act. It is possible that in merging the authority for the grant aid and the sales authority, additional administrative provisions may be needed other than those included in the new bill. If so, the Committee will consider any changes that the Executive Branch deems necessary.

The authorization for military grant assistance proposed for FY 1974 by this bill is $250 million which, after deduction of the 50-percent foreign currency payments requirements, means a cost of $125 million to the taxpayer. A separate item of $25 million is included for military training. These compare with the Administration's budget request of $685 million, a reduction of $535 million. Additional savings will come from the foreign currency payments received for excess defense articles.

For military credit sales, the bill authorizes $200 million, a reduction of $325 million from the budget request. Eighty million dollars for supporting assistance is authorized. As stated before, this does not include funds for Indochina which will be dealt with in separate legislation. This is a reduction of $652 million

(please turn to page 62, col. 2.)

For Improved Security

Interdependent World Needs U.S. Cooperation

Those who oppose Government participation in the Security Assistance Program rest their position on several arguments: the burden on the American taxpayer, the U.S. balance of payments crisis, problems caused by overcommitment abroad and, finally, the assertion that the program is outdated and should be terminated. As a result, many abrupt and arbitrary changes have been proposed in that program, changes which I believe would severely damage relations with a number of countries and signal an undesirable shift in the direction of U.S. policy at a particularly inopportune time.

For over 25 years, America's foreign aid programs have been considered a vital policy tool by five Presidents representing both major parties. I believe these programs continue to provide a unique and important instrument of U.S. foreign and national security policy. What is at issue today is whether the United States will continue to cooperate with other nations in helping to meet their defense needs, thereby strengthening our own security and serving our national interests. Strong military capabilities on the part of allied and friendly nations reduce the chance of local conflicts which eventually could threaten U.S. interests and potentially require our military involvement.

by Senator Hugh Scott (R.-Pa.)
United States Senate

We all agree that we live in a time of far-reaching diplomatic change. The successful conclusion of the initial strategic arms limitation agreement with the Soviet Union, the ending of our torment in Vietnam, and the steps towards normalization of relations between the United States and the People's Republic of China have ushered in a new era in the history of international affairs. Judgments differ, however, as to what these changes should mean for American foreign policy.

There are many who have concluded that because of the inherent limitations on U.S. military and economic power, the United States should severely curtail its involvements abroad. This approach has as its basic assumption the concept that each nation possesses only a limited store of resources which must be preserved and used to meet its most pressing domestic needs.

I hold to the opposite view. Put simply, it is that the resource base of the United States is not fixed, that our national well-being is determined by the interaction of domestic and international forces and that, by setting aside some of our resources for judicious use abroad, we actually enhance the likelihood that our reservoir of national resources will grow. At the core of this thinking is the conviction that we live in an increasingly interdependent world, one which requires nations to meet their needs through cooperation as well as through competition. To shrink from the challenge of building new, constructive relationships is to ensure that this country's resource base will not keep pace with rapidly mounting domestic needs.

Growing Interdependence

The degree of U.S. dependence on a broad range of resources in the world at large is reflected in the current energy crisis, in the ongoing deficit in our balance of payments, in the value of the dollar in the international money market, and in our international trading posture. We also share with other nations a deep concern with problems such as pollution, population, control of the environment, uses of the oceans, and the movement of people across national borders. The degree to which interdependence is the wave of the future is mirrored in the dependence of the Soviet Union on American wheat and American willingness to import Russian natural gas, as well as in the apparent appetite of mainland China for modern technology and the willingness of many nations to permit international corporations to invest in their economies.

During the last quarter of the 20th century, mutual dependence around the world is certain to increase. However, if the results are to prove beneficial to the United States, we must continue to make a contribution to the development and security of other nations. This does not mean that we must be encumbered with the principal responsibility for such security or that we have an obligation to serve as the world's policemen. We clearly need to define more modestly the scope and reach of U.S. security interests. On the other hand, we must deal with the world as it is, rather than with what we would like it to be. And we must recognize that as long as nations are determined to protect their sovereignty, they will seek the means to ensure their security.

In the past, the United States has played a major role in providing military advice, goods and services to nations in Europe, Asia, the Middle East, Africa and Latin America. Our purpose has been to help these countries provide a modicum of security for their citizens, to help establish the conditions necessary for economic growth, and to maintain an appropriate balance between the twin imperatives of development and defense.

There have been three major elements in our security assistance efforts:

- Military Assistance Program.
- Foreign Military Sales, both cash and credit.
- Security Supporting Assistance.

A fourth element, grant military training (now designated as the International Military Education and Training Program) while highly important, is not a major program in dollar magnitude. Since both the Congress and the Administration have proposed a separate legislative basis for this program, it will not be discussed in this article.

Military Assistance Program

The Military Assistance Program (MAP) provides equipment, supplies and services on a grant basis to help less developed allied and friendly countries protect their independence and security.

Historically, the program has served its purpose well. However, it is generally agreed that grant military assistance should be phased out as circumstances permit.

Vigorous action has been taken to move recipient countries toward self-reliance. The number of countries participating in the program has been steadily reduced. Materiel programs for some 25 countries have been terminated in the past 10 years. The Military Assistance Program for FY 1974 reflects this decrease in the number of recipients and a corresponding decrease in the amount of assistance provided. Grant materiel assistance in FY 1974 is planned for only 20 nations, of which eight—Cambodia, Ethiopia, Indonesia, Korea, the Philippines, Thailand, and Turkey—will receive 82 percent of the total. Greece ceased being a grant recipient during FY 1973, and the grant materiel programs for the Republic of China on Taiwan and Liberia terminated on June 30, 1973. Many former grant recipients worldwide are now purchasing the military equipment and services they need from the United States.

The pace at which we can terminate grant aid programs for additional countries is heavily influenced by the ability of the countries to shoulder their own defense burden. Arbitrary and abrupt termination without careful assessment of foreign policy implications and the economic capabilities of recipient countries to self-finance their defense needs could seriously jeopardize much of what has been accomplished.

In addition to the reduction in the number of grant assistance countries, the overall amount of assistance also reflects a downward trend from $1.6 billion in FY 1962 to the $652 million requested in FY 1974 (which, incidentally, is less than 1 percent of the Department of Defense budget).

In summary, the phase out and eventual termination of grant materiel assistance should be an objective toward which we continue to move without setting specific terminal dates at this time. Termination should be so timed and administered as to avoid erosion in the security and economic progress of nations now dependent upon us.

Foreign Military Sales, Cash and Credit

The Foreign Military Sales (FMS) Program is one of the most important instruments available to our Government to help other countries improve their defense posture through self-financed means. With the growing economic self-sufficiency of our allies and friends, many nations now have the capability to either pay cash for their purchases from us or buy with the help of credit funds annually authorized and appropriated by the Congress. These credit funds are repaid in full and with interest by the borrower.

The economic recovery and growing self-reliance of our allies and other friendly countries have enabled many of them to support adequate military establishments with their own resources. As a result, our aid has been steadily transformed from grant military assistance to foreign military sales. In 1965, foreign military sales exceeded military grant aid for the first time in history. Today, annual sales amount to about eight times the level of grant aid.

During FY 1972, nearly $3.5 billion of U.S. defense equipment and services were sold to our friends and allies around the world. Some $500 million of these sales were facilitated by the use of foreign military sales credits, while nearly $3 billion sold for cash. These totals are expected to be even greater for FY 1973. Sales of this magnitude not only increase the collective military strength of the United States and its allies, they also strengthen the economy of the United States and assist considerably in offsetting our Nation's adverse balance of payments position.

Opponents of security assistance have sought to reduce the role of the U.S. Government in arms transfers and to place such transactions increasingly into commercial channels. They have proposed to preclude cash sales of defense articles to developed countries if such articles are available commercially, through reductions of authorized credit levels and a number of other constraints.

I strongly believe that such a reduction of the Government role would be contrary to our national interest. Since most of the defense systems involved in such sales are a mix of commercially produced and U.S. Government-owned components, it is normally more efficient and advantageous for us to make such sales on a government-to-government basis. This process enables us to monitor such sales more closely and, in those cases where U.S. forces use the same defense systems, makes possible the conveniences of standardization as well as substantial savings for both the United States and foreign governments. In addition, most foreign governments prefer to buy on a government-to-government basis because it assures them of a follow-on supply of items and spare parts.

Self-Reliance Encouraged

The goal of encouraging our free world partners to become more self-reliant requires that nations having the economic capability should procure their own military equipment and services for cash or for credit on appropriate terms. Allied and friendly countries which have achieved this capability and wish to buy from the United States should be able to obtain appropriate armaments and services to meet valid needs.

To deny such countries access to U.S. military technology and materiel through limitation of credit and other constraints often forces them to procure inferior or more costly arms elsewhere at our political and economic expense.

Foreign military credit sales and credit guaranties are key elements of the Security Assistance Program. The amounts used for direct credits are repaid to the U.S. Treasury with interest by the governments to which they are made available. That portion used for the guaranty reserve remains with the Treasury unless there is a claim for default that must be satisfied. Developing countries are often unable to expend substantial sums of cash for the purchase of modern defense systems, and can seldom obtain the magnitude of credits needed from private sources on reasonable terms. Credits provided or guaranteed by the United States through the Foreign Military Sales Program are, therefore, essential if these countries are to purchase required military equipment and services.

A credit program that is inadequately funded will mean that foreign countries seeking to purchase their defense requirements will turn away from the United States towards other suppliers who are actively seeking to expand their sales and strongly support them by national credits. When we cannot provide sufficient credit, we greatly increase the fears of our allies and friends regarding the dependability of the United States as a source of supply, and we thereby force many to turn elsewhere with attendant losses in our political relations and in our trade and balance of payments position.

Security Supporting Assistance

A third major component of security assistance is security supporting assistance, administered by the Agency for International Development. Security supporting assistance furthers economic or political stability in nations threatened by significant security problems. Being economic assistance, it normally also contributes to the economic growth or development of the recipient country, but the U.S. purpose is neither economic growth nor development *per se*. Rather, it is to stabilize the economic or political situation as a means of improving security.

Supporting assistance has been an important instrument of our foreign policy over the past two decades. Recently, the improved international climate has made possible a reduction in both the number of countries and the level of funds requested. Yet, the need for supporting assistance continues in many areas. Today, for example, we are providing much needed supporting assistance to the governments of Israel, Jordan and Thailand. In addition, we are helping to maintain United Nations supervisory forces on the island of Cyprus. To eliminate these programs would threaten increased instability in the Middle East and in Southeast Asia.

Problems Continue

The premise of those opposed to security assistance appears to be that to help a friendly state provide for its national security is questionable in principle and not in the long term interest of either the United States or the recipient. I firmly reject this view. Whether we like it or not, security problems have existed throughout history and there is every indication that they will continue to exist in the future. Ignoring them will certainly not help solve them. Imposing an arbitrary end to our security assistance programs would drastically reduce our ability to influence events, but it would not end the problems—indeed it would probably make them substantially worse.

To help states which are committed to building a better life for their people within an international environment of peaceful and orderly progress can only help build a better world for Americans also. To be able to exert our influence for restraint and calm in periods of tension is surely better than abdicating that influence by refusing to cooperate with others in providing for their vital national interests. □

Growth Anticipated in Private Credit Financing

Banks and other financial institutions certainly have no desire to dictate U.S. policies with respect to the sale of military equipment to foreign nations. Nevertheless, they have the right to know what the policies are regarding such sales and the right to be given information on how to participate in their financing. They can then make their own decisions on whether or not to participate and determine what credits they want to become involved in.

Normally, but not always, loans for foreign military sales (FMS) are fully guaranteed by the Export-Import Bank (developed countries) or the Department of Defense (less developed countries), thereby eliminating the risk factor. In the past, types of loans have varied widely, but one of the most common arrangements provides that half the credit consists of a direct loan from the Export-Import Bank or the Department of Defense, while the other half comes from private sources supported by a U.S. Government guaranty.

For example, a $300 million joint loan to a foreign government, negotiated in 1972, was designed to provide a fixed rate of interest to be paid by the buying country. However, the rate for the $150 million private portion was tied to the prime rate, thus floating in accordance with market conditions. The rate on the Government portion was set so the overall rate paid by the foreign government would be favorable. Thus, during a period of tight credit, the private rate will go up. As credit conditions ease, however, the private rate should go down and, thus, moderate the total cost to the foreign government.

In more recent DOD loans, the Treasury Department has given preference to fixed rather than floating interest rates, but the principle of the split rate has remained. For example, the Treasury Department has offered the private share of the loans on a bid basis. The DOD rate was then negotiated separately. However, Export-Import Bank loans still permit banks to negotiate a floating rate on the private portion of such loans. (Financial institutions may obtain additional information concerning Export-Import Bank credits from the Bank's Washington office. Information about DOD loans may be secured from the Secretary of the Treasury. Both types of loans are also advertised in the *Federal Register*.)

by Robert A. Wallace
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Opinions expressed herein are those of the author and not necessarily those of the Department of Defense.

Advantages to Private Lenders

Maturities on the private portion of FMS loans normally range from 7 to 10 years. Current regulations provide maximum interest rates of ½ of 1 percent above the prime rate when the private funds come from domestic sources, and ¾ of 1 percent above the high side of the Eurodollar rate in London when private funds utilize Eurodollars (U.S. dollars held in foreign banks). However, domestic fund loans cannot exceed 9 percent interest and Eurodollar loans cannot exceed 10 percent. The effect of these differential provisions with respect to the source of funds has been softened by auctions and mixed credits. Experience has shown administrative ceilings can interfere with the most effective placement of loans.

FMS loans are exempt from the Federal Reserve System's voluntary Foreign Credit Restraint guidelines. For example, a Treasury Department public notice of invitation to bid by financial institutions for FMS private credit was published in the *Federal Register* on June 7, 1972. A supplement was published on June 19, 1972, which outlined the following benefits to private financial institutions:

- No interest equalization tax.
- No Federal stamp tax.
- No Federal income tax on the guaranty fee reimbursed by the borrower.
- No U.S. withholding tax on the interest paid on the loan since the interest is foreign source income.
- No taxes imposed by the borrower.
- The loan is not subject to legal lending limits of national banks since the participations are deemed to be general obligations of the U.S. Government.
- The rates and participations are fully and unconditionally guaranteed by the U.S. Government acting through DOD.
- Any obligation so eligible may also be accepted by Federal Reserve Banks as collateral for advances to member banks of the Federal Reserve System.
- Participations are acceptable at their face amount from special depositories of public money to secure Treasury Department deposits.

Growth of Private Credit

Private credit participation in foreign military sales began to grow after the enactment of the Foreign Military Sales Act of 1968. In FY 1968, such private credit rose to $43 million but involved only one bank. In FY 1969, private credit rose to $55.3 million with three banks participating.

In FY 1970, there was no private participation due to Congressional difficulties in approving necessary legislation. In FY 1971, the record was almost identical to FY 1969—$55.6 million of credit involving eight banks.

The biggest year for private participation was FY 1972 when 31 banks took part in $220 million of private credit using DOD's guaranty. An additional $100 million of private credit was extended by 14 banks utilizing the Export-Import Bank loan guaranty. In FY 1973, private credit guaranteed by DOD reached virtually the same level as in FY 1972, and the Export-Import Bank guaranteed another $200 million to private financing of defense articles sold to developed countries.

The Administration request to Congress for FY 1974 funding included a plan for DOD guaranteed private credit of $313 million as a part of a total of $760 million for foreign military credit sales. The House approved authorization of $760 million total credit for such sales, but only $450 million in credit funds instead of $525 million as requested. If the total Foreign Military Sales Program is to be realized, the private credit level will have to be increased to about $410 million.

The Senate was even more pointed in its emphasis for private credit financing of this program. It approved a total authorization of $700 million for the sales program with only $200 million of DOD credit funds which, in effect, means over $600 million of private credit.

Regardless of the outcome of the Senate/House Conference Committee action, the level of private credit must be substantially increased beyond the current level of $220 million. Potential needs range from the Administration's estimate of $313 million to the $665 million estimated by the Senate. Private lending institutions face a serious challenge to meet the future credit needs for the defense security programs.

Objective of Assistance Program

A fundamental aspect of the Nixon Doctrine is the Security Assistance Program. In the President's 1972 State of the World Message, he described Security Assistance as a "cornerstone of our foreign policy and of Free World security." This program has been subject to changing circumstances, but its purpose has remained the same, *i.e.*, to assist those nations willing to work for peace and progress.

Over the past years foreign countries have changed from grant aid recipients to major buyers from the United States. A primary objective of the Security Assistance Program is to ease and speed the transition of friendly and allied countries to greater national self-reliance. Thus, U.S. foreign policy has come to depend more and more on credit sales, as well as grant aid, to the various countries who buy defense equipment from the United States. The President describes this policy in the following manner:

> *Doing too much for an allied people can delay their political maturity, promote a sense of dependency and diminish that nation's incentive to stand on its own feet. But doing too little for an ally can induce a sense of despair, endanger their right to self-determination and invite their defeat when confronted by an aggressor.*

While there is considerable criticism of munitions sales among representatives in Congress, the policy itself has been ratified. Financial institutions which participate in the program are operating in the best interest of the United States as defined in policy pronouncements by both the President and Congress.

The Economics of the Policy

The economics of the policy will be readily apparent to U.S. financial institutions. Foreign military sales obviously improve the U.S. balance of payments and balance of trade positions. To forego such opportunities obviously means a reduction of the U.S. ability to earn foreign exchange, thereby permitting other industrialized nations to accrue such earnings instead.

The U.S. balance of trade has deteriorated rapidly since 1970. The merchandise trade balance, for example, which was consistently in surplus through 1970, has since been consistently in deficit. Presently, this balance has improved as the shrinking value of the dollar has cheapened U.S. exports, thereby increasing their marketability. However, the United States is still in a substantial deficit position.

The consequence of the U.S. balance of payments deficit has been a drastic cheapening of the U.S. dollar as the amount of dollars held abroad has reached staggering proportions—some $70 billion in foreign central banks and an estimated $80 to $100 billion (Eurodollars) in private hands.

The United States must, therefore, look to an increase in its foreign exchange earnings. Foreign military sales can be an important source of such funds.

One of the primary considerations in official policy is, undoubtedly, the fact that the United States—or even the United States and the Soviet Union together—no longer represents the sole source of military purchases. France, Great Britain and other countries, even tiny Israel, are now capable of producing very sophisticated articles of defense for sale abroad. Thus, it is not for the United States to decide whether or not a country should be permitted to purchase defense equipment. Rather, the question to be answered is whether or not the United States should permit itself to be one of a number of countries willing to sell such products to foreign governments. ☐

Air Force ILS Planning Begins in Conceptual Phase of System Acquisition Process

Air Force management concepts used in the development and acquisition of aircraft, missiles, and command-and-control systems have undergone a major overhaul the past several years. Among the many changes effected since the change in DOD top management in 1969 has been a renewed emphasis on the early application of the integrated logistic support (ILS) concept in program planning. This change has had a profound effect on the roles and responsibilities of the logistic planners and the feasibility study contractors during the conceptual phase of the acquisition cycle.

In May 1970, while still trying to adjust to program management changes brought on by the ILS advocates, system managers and logisticians were confronted with more drastic policy changes directed toward:

- Mitigating several of the problem areas of systems management through elimination of the concurrency concept.
- Delegation of more authority and responsibility to program directors.
- Allowance for more realistic schedules.
- Establishment of program milestones requiring decisions to be made at the level of the Office of the Secretary of Defense.
- Minimizing the technical risk through intensive prototype and preproduction testing rather than relying heavily upon paper design analyses.

This policy also addressed the need for early logistic planning, but cautioned against the expenditure or commitment of funds for design dependent logistic resources until the final production design has been completed.

As implemented by Headquarters, U.S. Air Force, the policy describes the acquisition life cycle of a defense system program in terms of five phases: conceptual, validation, full-scale development, production and deployment. The program is reviewed by the Defense System Acquisition Review Council (DSARC) and approved by the Secretary of Defense before entering the validation, full-scale development and production phases.

by Lt. Col. David N. Burt, USAF *and* **Joseph P. LaBelle**

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Air Force Institute of Technology

Conceptual Phase

The conceptual phase of the system acquisition process is the initial period when the technical, military and economic bases for acquisition programs are established through comprehensive studies and experimental hardware development and evaluation. The outputs are alternative concepts and their characteristics (estimated operation, schedule, procurement, cost and support parameters) serve as inputs to the Development Concept Paper (DCP) on major systems, program memoranda on smaller systems and equipment programs, and decision documents (Program Management Directives—PMD's) issued by Headquarters, U.S. Air Force, for programs that do not require approval by the Office of the Secretary of Defense. The conceptual phase extends from the determination of a needed operational capability to the program decision which authorizes the accomplishment of the validation or equivalent phase.

Within the Air Force, military, technical and economic bases are established during the conceptual phase by the combined efforts of Air Force Systems Command (AFSC), Air Force Logistics Command (AFLC), Headquarters, U.S. Air Force, and the concerned operational commands. AFSC is not only responsible for the technical aspects of the conceptual phase, but also primarily responsible for documenting the system alternatives to meet the operational need and for inputs to the draft DCP used by the Air Force to propose programs to the Secretary of Defense.

The effort expended during the conceptual phase to obtain program approval is called "program advocacy." The advocacy documentation contains basic information from which the DCP is prepared and supports the request to the Secretary of Defense to proceed with the next phase of the acquisition process. The objective of the conceptual phase is to define and select the system concepts which warrant further development. Outputs of the conceptual phase are alternative configurations with the preferred configuration identified. The advocacy documentation and the DCP, prepared by Headquarters, USAF, should demonstrate that:

- Mission/performance envelopes are adequately defined, technically feasible and capable of achieving the stated objectives within reasonable cost and schedule constraints.
- Major uncertainties are identified for further investigation during the validation phase (or equivalent).
- Preliminary cost and schedule estimates are based upon sound analyses and are commensurate with the degree of certainty in the other aspects of the program.

The Office of the Secretary of Defense (OSD) has stressed the extreme importance of making right decisions during this conceptual effort; wrong decisions create problems not easily overcome later in the program. The right decisions are influenced to a large degree by the information contained in the DCP's submitted by the Military Services. The DCP, in turn, is developed from information generated during conceptual phase studies and system analyses conducted in-house or by study contractors, or both. ILS planning, therefore, should be directed toward providing the decision makers in Headquarters, USAF, and OSD with information concerning the foreseeable logistic consequences associated with each of the various design alternatives emanating from the conceptual phase feasibility and system design studies. This information, when included in the advocacy documentation, would complement technical, cost and management information developed by the AFSC program office, and could influence the selection of one of the proposed alternative system designs for subsequent validation and full-scale development.

ILS Objectives

The primary objectives of ILS planning during the conceptual phase are to:

- Identify special logistic support requirements and problem areas which should be subjected to life cycle cost and trade-off analyses.
- Develop meaningful ILS requirements for inclusion in specifications, statements of work (SOW) and requests for proposal (RFP) during subsequent program phases.
- Identify and evaluate all possible support options.
- Define logistic support plan requirements.
- Provide for the timely assignment of the appropriate logistic support management responsibility.

Organization for ILS Planning

Within the Air Force, ILS planning during the conceptual phase is accomplished primarily by AFLC and AFSC, with assistance from the using command and the Air Training Command (ATC). Overall program management is normally assigned to a project officer or program manager at one of the major AFSC product divisions—ASD (Aerospace Systems Division), ESD (Electronic Systems Division), or SAMSO (Space and Missile Systems Organization).

To ensure maximum coordination and integration of system design and logistic support efforts, an AFLC plans office has been established at each of the three AFSC product divisions. The three plans offices and an integration division make up the Directorate of Technology and Development Plans in the Office of the Deputy Chief of Staff for Plans and Operations at AFLC headquarters. Each plans office is headed by a deputy director and has from five to six experienced logisticians and clerical staff to perform the ILS planning function of AFLC.

Planning Techniques

Because the functional technical expertise within AFLC is primarily located at the Air Materiel Areas (AMA's), the AFLC logistic planner organizes and acts as chairman of an informal logistic planning group with representatives from one or more of the AMA's, other AFLC field agencies, the AFSC project office, the using command and Air Training Command. This group provides the logistic planner with the specialized capability required to develop inputs to contractual documents, participates in source selection and evaluations, prepares inputs to the advocacy documents and reviews contractor reports.

Since the AMA responsible for logistic management of a defense system is usually not designated until an AFSC program office cadre is established, it is not uncommon for more than one AMA to be represented on the logistic planning group. The planning group's activities, findings and decisions are recorded in the initial Integrated Logistic Support Plan (ILSP), prepared by the logistic planner to assure that support concepts and tasks are identified and related to functions, and that the functions are related to the responsible organizations. The ILSP addresses each of the ILS elements and sets forth the proposed support requirements for contractual application during subsequent program phases.

Conceptual Phase Contracts

The contractor's role in ILS has been fairly well recognized during the full-scale development and production phases of the system acquisition process and, to a lesser degree, during the validation phase. There seems, however, to be a lack of general agreement on where the contractor fits during the conceptual phase when most of the emphasis is placed upon determining the various technical approaches to satisfy an operational requirement. During this period, the AFSC program office awards one or more feasibility study contracts to assist the Government in identifying and evaluating alternate system configurations to meet the stated requirement. Contractor efforts may be directed toward specific portions of the program where the least information is available, or the contract may call for an entire system requirement study to provide the program office with an adequate data base for preparation of the advocacy documentation.

During this period, the study contractor becomes the most knowledgeable information source concerning the design approaches being considered. The ILS planner is in a position to tap this source, if he can properly identify his requirements, define them in the contract and evaluate the results received from the contractor. Due to lack of specific guidance, such as that which exists for the other phases of program acquisition, this has been essentially an individual effort at each of the AFLC plans offices with varying degrees of success.

Determination of Logistic Inputs

In identifying logistic inputs to conceptual phase study contracts, the logistic planner must consider the following points:

- Can the preliminary design study (PDS) contractor provide logistic information and/or services which would assist the Air Force in comparing relative support characteristics of options available in meeting stated operational requirements?
- Can the PDS contractor assist in estab-

lishing and defining ILS requirements which must be levied on the validation and full-scale development phase contractors?

What information and direction can (or must) be provided to the PDS contractor for him to perform the required services and develop the desired data and reports?

Normally, the PDS contractor analyzes the stated operational requirements, transforms them into a description of system performance parameters and synthesizes these into one or more possible system configurations. Thus it should be both feasible and practical for this same contractor to concurrently analyze and evaluate the various combinations of logistic support elements required to achieve and maintain that system performance.

PDS Contractor Can Help

The PDS contractor, therefore, should be able to develop (in gross terms) alternative support concepts which are compatible with his system design alternatives; and identify potential trade-offs which could be made among support elements themselves, as well as between support and design requirements, in such a manner that the optimal arrangement is evident. This product could then be evaluated by the Government and, if acceptable, used as the basis for logistic input to the program advocacy documentation.

The PDS contractor should also identify those support elements most sensitive to changes in performance requirements or allowable costs and which should be subjected to more detailed analysis and trade-off studies during validation. The PDS contractor could also be requested to develop the required phraseology to be used in the request for proposal (RFP) and statement of work (SOW) to obtain the desired product. This product would also be evaluated by the Government and tailored as necessary for input to the program management plan (PMP) and the subsequent phase RFP/SOW.

Logistic requirements for the preliminary design study RFP and SOW must be developed. It must be decided whether to merely tell the contractor *what* he is to do or whether he is also to be told *how* to do it, *e.g.*, specify the use of a specific model or technique. It may be well during this initial effort in developing SOW criteria for preliminary design study contracts to concentrate on the *what* rather than the *how*. Hopefully, as experience is gained through use of these requirements, preferred methods will be recognized and ultimately refined to the point where they can be specified with some degree of confidence.

The ILS planner is in a position to gain considerable analysis on support considerations of alternative design approaches if he can properly define his requirements in the preliminary design study (PDS) contract. The PDS contractor can identify probable support characteristics of different design approaches and recommend ILS requirements to be contained in the statement of work for the system request for proposal.

To obtain such support from the PDS contractor, the ILS planner must provide guidance and must specify the services to be provided in the ILS area. ☐

A sample matrix of pertinent ILS data that could be furnished to the PDS contractor, and the kinds of information that could be expected from him, is available from the authors at Wright-Patterson AFB, Ohio 45433.

TRI-TAC: *Architect & Planner for Joint Tactical Communications Equipment & Its Logistic Support*

In the present constrained resource arena, one of the most important but often misunderstood and misused buzz phrases is integrated logistic support (ILS). The definition of ILS, contained in DOD Directive 4100.35, simply stated, is "A composite of all the support considerations . . . necessary to assure the effective and economical support . . . of a system (or equipment) . . . for its life cycle . . . and . . . an integral part of all other aspects of system acquisition and operation. . . ." Some of the very real and extremely expensive areas of support that must be considered by DOD system acquisition program managers are:

- The maintenance plan.
- Support and test equipment.
- Supply support.
- Transportation and handling.
- Technical data.
- Facilities.
- Personnel and training.
- Logistic support resource funds.
- Logistic support management information.

Despite some false starts, DOD Directive 4100.35, "Development of Integrated Logistic Support for Systems/Equipment," is finally emerging as a powerful tool for planning logistic support and ultimately reducing costs. This directive, strengthened and reissued in 1970, was reinforced in 1971 by DOD Directive 5000.1, "Acquisition of Major Defense Systems," and requires that logistic support considerations and cost be considered as principal design parameters. In effect, policy in these two directives influences the developing activities to consciously design into defense systems and equipment, at the outset, those features that will reduce requirements for logistic support. Such efforts, in turn, can have the beneficial effect of reducing both initial acquisition costs and life cycle costs.

Prompted by these two directives, many DOD program managers and their logisticians are attempting to design support rather than use the past practice of supporting the design at any cost—often accomplished only by di-

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Joint Tactical Communications Office (TRI-TAC)

OASD (Telecommunications)

verting funds and resources from other plans and programs. The actions necessary to bring about this change have been slow to come and have required education or re-education of the personnel involved. No matter how much the logisticians attempt to relate support in design, the requirement to integrate logistic support as a principal consideration in the design process cannot succeed unless managers at all levels see "what's in it for me" at each stage of the system development program. Such has been the case in the Joint Tactical Communications Office (TRI–TAC).

TRI-TAC, an element of the Office of the Secretary of Defense under the staff supervision of the Office of the Assistant Secretary of Defense (Telecommunications), is the system architect and principal planner for joint tactical communications equipment and its requisite logistic support being developed for use by the Military Services and Defense Agencies.

Putting ILS into Design Process

Actions taken by TRI–TAC to initiate the integration of logistics into the design process of communications development programs are the:

- Establishment of a joint ILS Coordinating Committee chaired by TRI–TAC. Membership on the committee consists of senior logisticians from TRI–TAC, the Military Departments and the Defense Agencies. Its function is to resolve any differences in logistic philosophy or plans which could result in a lack of support for any user of equipment developed under TRI–TAC sponsorship.
- Promulgation of an ILS policy requiring early and complete integration of logistic support planning for joint communications equipment developments.
- Control of the equipment performance specifications by TRI–TAC, enabling the system architect to assure that support parameters are as much a part of the specification as are performance parameters.
- Conduct of a series of seminars to expose all TRI–TAC professional personnel to the principles of ILS.

Planning support for tactical communications equipment to be used by two or more Military Services or Defense Agencies gives an added dimension of complexity to the problems inherent in development and acquisition of military hardware. Conversely, it provides an opportunity for large scale economies.

With an eye toward economies in costs of development, acquisition and support, the ILS policy of TRI–TAC stresses the need and requirement for common understanding and implementation, and requires actions necessary to ensure TRI–TAC systems and equipment would be capable of being operated and maintained in the most economical manner in their intended environment. The policy is applicable to the Military Services and Defense Agencies that may be tasked to develop and acquire equipment or systems under TRI–TAC auspices.

Balanced Support Emphasis

TRI–TAC supplements basic ILS policy by providing an initial ILS plan, along with the system or equipment specification, to the acquiring DOD component which then prepares a more detailed plan. Because the equipment will be used by two or more Services, the ILS plan must consider joint aspects of support and must be approved by TRI–TAC. The plan serves as the basis for inclusion of ILS requirements in specifications and other contractual documents.

BALANCED EMPHASIS

The policy of TRI–TAC requires planning for logistic support to begin at the program initiation stage so support funding needs can be identified early in the program. It also requires the acquiring DOD component to issue a certificate to using commands attesting that ILS has been fully planned and acquired. Support costs must be clearly identified and any program changes, which cause a reduction or elimination of logistic support effort, must be documented, indicating the effect of the change on a system's operational capability and availability. Essentially, then, TRI–TAC seeks to assure a balanced emphasis between technical, operational and support requirements.

The graph shown as Figure 1, while standard bill of fare in many materiel acquisition processes, is often forgotten in logistic support planning. The concept portrayed is as important in the field of logistics as it is in engineering. Many plans or designs for logistic support have been developed late in the life cycle phase and, as a result, options for support were few and costs were high. The design was supported at "whatever the cost."

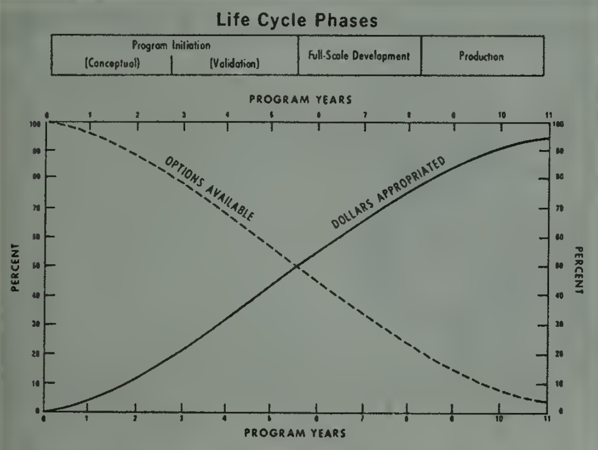

Figure 1

In view of the time and option relationship, the engineers and logisticians can no longer afford to live in separate communities, divided by artificial barriers. The Nation can only afford a systems approach in which all concerned with the acquisition process integrate their efforts at the appropriate time. The purpose and objective of logistic support integration is to:

- Promote development of hardware which is technically excellent, cost effective, reliable and maintainable, and realistically supportable throughout its operational use.
- Attain operational readiness over a programmed life cycle.

Essential Requisites

It is essential that several significant requisites be met to successfully integrate logistic support into the design phase in both joint and independent DOD component system acquisition programs. These are:

- Top management must support integration of logistic requirements into the design process.
- The entire acquisition community must be made aware and convinced of the benefits of integrating requirements for logistic support with the design process.
- Logisticians must express support requirements explicitly for inclusion in specifications, requests for proposals and contracts.
- Equipment specifications must clearly state specific verifiable logistic requirements. Blue sky statements of "high reliability," "easy maintenance," etc., lead to confusion, misunderstanding, unenforceable requirements and unsupportable equipment.
- The specification for the contractor must contain only related equipment design and fabrication work tasks.
- Logistic planning must begin as soon as the conceptual need for the proposed acquisition is recognized.
- Qualified logistic managers cannot be created overnight by assignment to the job. Military Departments and Defense Agencies must train personnel, who are proficient in one or more areas of logistics, in the broader aspects of the logistic management career field.
- Interchange of information between various disciplines must be vigorously practiced by all specialists of the acquisition team.

Summary

Requirements for logistic support must be recognized and identified as early as possible in the acquisition cycle. The program manager must determine the what, when, who and how at the appropriate time and translate them into numerical requirements wherever possible and practical. Resources must then be programmed to meet approved requirements.

It is important for managers at all levels, especially at the top, to recognize that as the system development progresses through the acquisition cycle and funds are committed, available options for satisfying requirements for logistic support lessen.

Determining support needs concurrently with the design process should have the beneficial effect of achieving logistic readiness and supportable equipment at the least cost. ☐

Value Engineering & Design to a Cost:

Kissin' Cousins?

With growth in recognition of the "cost crunch" in the Department of Defense, the search for ways and means to improve the effective use of the defense dollar has been intensified. The cynic who recalls a long standing maxim, "More bang for the buck," will say, "What's new?"

Several things are new. The cost crunch is real. Past engineering priorities on performance are being modulated with equal concern for production and support costs. Research and development cost reduction initiatives and design to a cost practices are increasing daily. Representation from the Office of the Director of Defense Research and Engineering along with that of the Office of the Assistant Secretary of Defense (Installations and Logistics) has been provided on the newly created Defense Materiel Specifications and Standards Board. Other actions are underway.

One of the old ways to reduce costs which is receiving a second look is the DOD Value Engineering (VE) Program. Possible program reforms and its relation to the design to a cost concept are being examined.

VE began largely as a "grass roots" movement, initiated by engineers who recognized the need for a systematic approach to reducing costs of both commercial and military products. The program in DOD was expanded in the mid-1960's as part of the Cost Reduction Program.

by Vice Adm. Eli T. Reich, USN
Deputy Assistant Secretary of Defense
(Production Engineering and Materiel Acquisition)
OASD (I&L)

Controversy has surrounded VE from the start. Fallacious (after-the-fact labeling) and exaggerated claims of savings led many to consider VE simply a "reporting" element for documenting the savings of others. Defense Science Boards were highly critical. The unduly complex VE provisions in the Armed Services Procurement Regulation (ASPR) caused difficulties in their administration and lead to charges of "giveaway" (unjustified enhancement of contractor profits). In 1969, a speaker for the Weapons Systems Management Course, at Dayton, Ohio, found that the entire class had heard of VE as a reporting element, half knew of the ASPR clauses, and only a fourth knew that a VE methodology existed. The desired ranking would be just the reverse. It is little wonder that management disenchantment developed in the late 1960's and early 1970's.

Nevertheless, continued high-level management reviews recognized the necessity to sustain a *valid* VE program. Accordingly, reforms have been quietly initiated at many levels. Reporting to the Office of the Secretary of Defense (OSD) was greatly reduced in terms of amount and frequency. The numbers of VE personnel at intermediate and OSD staff levels were cut. OSD no longer establishes goals for accomplishment. "Drum-beating" in the form of letters and symposia was reduced. A study to completely overhaul the complicated ASPR provisions was initiated and program reform in the Military Departments was quietly encouraged. The intent was to foster less "noise" and "claims" and more solid, useful work.

In 1972, as cost urgencies increased and design to a cost application became a sudden reality, various management, procurement and technical groups, in DOD and elsewhere, began to reexamine the potentials in VE. Reports by these groups indicate that, despite the past bad practices and resultant "ugly duckling" image, VE is viewed to have potential to contribute to the solution of the current DOD cost bind.

VE Can Work

The DOD Value Engineering Program is built on three main elements: the discipline, the VE Program Requirements Clause, and the VE Incentive Clause.

The VE discipline is simply a sequential organized methodology for analyzing a given product (hardware or software) to determine if costs can be reduced without impairing performance or reliability. Figure 1 illustrates the highlights of the sequence which usually employs an interdisciplinary team (design, production, procurement and estimating) approach. This method is employed both in-house and by contractors and is akin to the scientific method. It might also be regarded as the industrial engineering approach for review of engineering design.

The VE Program Requirement Clause (VEPRC) is a funded line item sometimes used in development contracts to foster future reduction in production cost. It has frequently been reported to be effective, although its use had been limited. Its application under the design to a cost concept will be discussed later in this article.

The VE Incentive Clause (VEI) has been used primarily in production contracts, al-

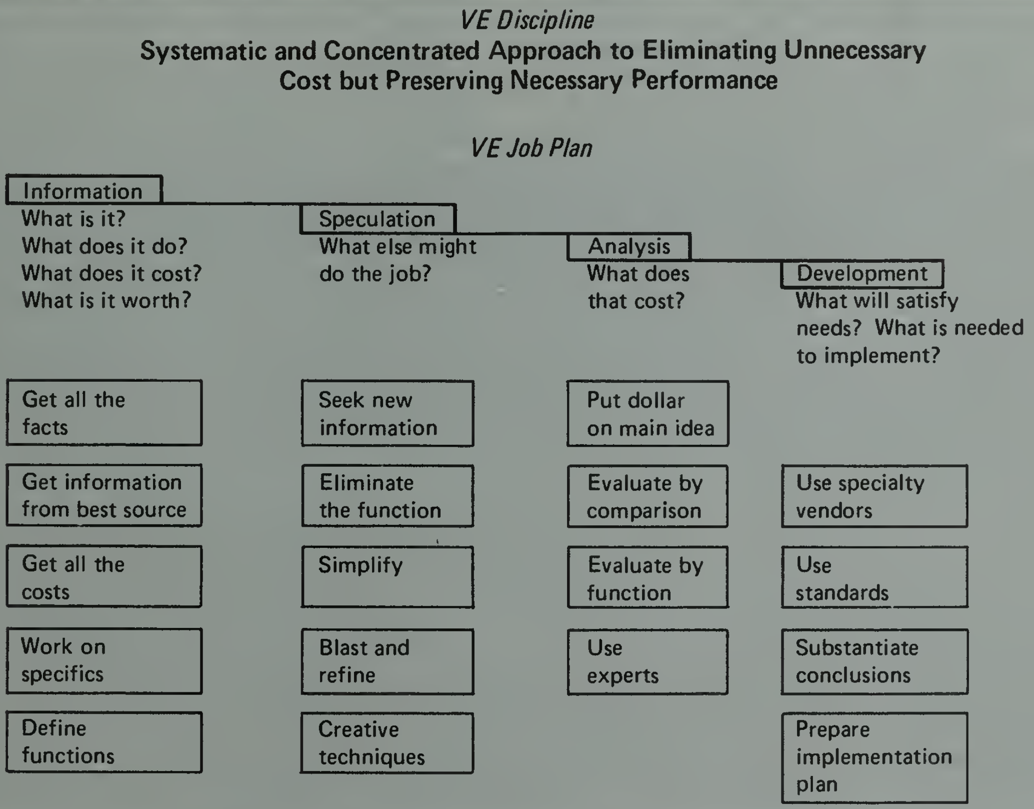

Figure 1

though a few applications have occurred in the development phase. The clause offers to share with the contractor any savings resulting from elimination of unnecessary contract requirements. Contractor participation is voluntary.

Any other action, however labeled, is not really value engineering. This includes lip service, after-the-fact labeling and other practices.

Whether or not VE works can best be demonstrated by reviewing examples of known *real* applications of the methodology or contract clauses. Some examples are shown in Figure 2. The projects listed at the top were all conducted in-house using the methodology. The items on the left are in production. Savings for the items on the right are estimates since they are still in development and will in all probability be lower in practice. The bottom half of Figure 2 shows Value Engineering Change Proposals (VECP's). While the exact dollar amounts can be questioned since negotiations are not completed in all cases, these changes obviously took place and reduced contract requirements.

There can be little doubt that VE, properly used, can reduce costs. But the skeptic has still another question, "Would these reductions have happened anyhow?" This is a tougher question to answer, since it is impossible to tell what would have happened in the future if VE had not occurred. In almost every case, one can reason that VE made it happen *sooner* rather than later. Thus, even if the change had been made later, savings would have been reduced. Likewise, one must recognize that change opportunities are frequently time limited, *e.g.*, if not made by a certain date, they are no longer economically viable. On the other hand, one must objectively agree that some of these changes would have occurred without VE. For example, history shows that contractors occasionally gave DOD cost reduction changes without the sharing motivation. In summary, however, one must conclude that significant cost reductions would not have occurred without the use of the VE methodology.

VE and Design to a Cost

Perhaps the most critical question presently facing the DOD Value Engineering Program is its relation to the design to a cost concept and its ability to help achieve design to a cost objectives. Following are some aspects of VE which could contribute to the design to a cost program:

VE Methodology is one of many means which can be employed to attack areas of high cost or areas exceeding target cost during development. A number of defense contractors currently use this approach. However, its use by contractors is optional (VE is an allowable cost) in line with DOD policy not to restrict

Sample Value Engineering Accomplishments

In-House

Item	Percent Savings	Item	Percent Savings
HUMIDITY PLUG	100	AN/GRC-106 RADIO	5
AIR GEAR HOOK PT	20	DENEYE WEAPON	55
MAU-12/A BOMB RACK	35	XM 588 FUZE	45
MER/TER BOMB RACK	10	XM 734 FUZE	40
XM-233 PARA. EJECTOR	25	XM 732 FUZE	27
COMMIKE III	37	XM 817 FUZE	47

Contractor Value Engineering Change Proposals

Ordnance Company (156 VECPs) (Fuzes, Ammunition, etc.)	- DOD Share $22.8 Million, Contractor - $13 Million
M134 Minigun	- 90 Approvals - $12 Million (DOD Share) - 10% of PEMA
Tow	- 5.5 percent Current Contract - $26.5 Million (DOD Share through FY 1976)
Maverick	- 82 Approvals - $35.7 Million
F-15	- 82 Approvals - $32.1 Million (127 aircraft)

Figure 2

contractors with regard to *how* something is accomplished.

VE Program Requirement Clause, a forerunner of design to a cost, will probably not be used widely in development contracts with design to a cost requirements unless DOD emphasizes its use because of unusual circumstances.

VE Incentive Clause has obvious use to restrict or offset cost growth after production is initiated. It should be useful in development contracts (see Maverick and F–15 data in Figure 2) to reduce development costs as well as future production costs. The clause may need modification in development contracts with design to a cost incentives to preclude overlap.

VE Training seminars on "live" projects are an excellent vehicle for presenting needed cost training to designers.

VE Personnel with good engineering backgrounds are excellent candidates to help establish design to a cost programs, methods and procedures.

What Is Needed

If DOD is to benefit fully from use of the VE Program to support achievement of design to a cost objectives, at least three things are necessary:

- Program reform must continue. This is essential if VE is to overcome its bad image in many quarters. VE must make a *real* contribution to defense system cost reduction, not serve as a bureaucratic scorekeeping system.
- The ASPR provisions relating to VE must be simplified and updated. Happily, an entire overhaul to accomplish this is nearing completion.
- Somehow VE must gain acceptance in the engineering community as a real contributor to the achievement of design to a cost objectives.

Having said all this, why doesn't the Office of the Secretary of Defense wave its magic wand and decree that this be done? Very simply because it wouldn't work under decentralization. History tells us that top level management desires are accepted best when they serve a real need. By its nature VE must take place at the level in which designs evolve, programs are managed and contracts administered. It must, therefore, meet needs at the same levels to be viable. Top management decrees can at best point out opportunities. The current DOD directives encourage VE activity by the Military Departments and Defense Agencies far beyond the scope of present operation. For example, a recent OSD study identified 15 possible actions to strengthen the program. Twelve of these, shown in Figure 3, could be acted upon by the Services and Agencies immediately. There are signs, in some cases, that such considerations are underway.

Improvement Possible by Military Departments under Current DOD Directive

- Stop fallacious reporting.
- Emphasize technique, not people.
- Emphasize as tool for engineers and managers.
- Train designers.
- Use incentive clause in development.
- Tiger teams.
- Use VE to support design to a cost.
- Funding.
- Annual VE plans.
- Management endorsement.
- Share the "benefits."
- Use contract clauses.

Figure 3

Perspective

The foregoing leads to the following conclusions:

- The VE Program has been challenged many times, but has always been sustained.
- Most past criticisms have been corrected (at least at the OSD level) or, to the degree possible, are being corrected.
- The current environment for good VE activity differs greatly from the 1960's.
- Need for cost emphasis is creating renewed interest in VE.
- History shows that, properly applied, VE has produced and could produce more reductions in costs of defense systems.
- VE can contribute to the application of the design to a cost concept.
- Military Departments and Defense Agencies could take many actions to enhance the DOD Value Engineering Program on their own initiative.

VE should not return to the scorekeeping practices of the 1960's. The results of that approach are all too well known. It is important that management treat VE in the proper perspective—as a means to an end rather than as an end in itself. VE *alone* will not cure dollar shortages or cost overruns. But meaningfully applied, it can *help*. Current cost problems make it essential that the VE Program reform continue and VE be used properly where beneficial. ☐

Contractor Should Have Latitude To Make Trade-Off Decisions

Balancing Value Against Cost

Three dimensions of control that must be considered in negotiating a defense contract are the specification of the required service or item and its quantity, time or schedule of availability, and cost or budget.

When a justifiable requirement for a service or item is established, the Defense Department, as the buyer, and the defense contractor, as the provider, contract for the product or service to be provided within a specified time and at a specified cost.

In writing a contract the buyer assumes that, by virtue of the negotiation and the legal nature of the contract, the contractor will comply with the commitment. Everything (quality, schedule, price) is assumed to be predetermined as of the time of the signing of the contract. DOD contracts, because of the rapid rate of technological advancement and the monopsonistic nature of the market, tend to be less certain and, considering the uncertainty, tend to be optimistic in their bias.

Because of the uncertain nature of DOD contract work, guidance for revising specifications, schedules and budgets after the contractor's work is underway is nearly as important as it is at the time of initial determination. The incentive formula in incentive contracts does, to some extent, satisfy this need for guidance under deviant conditions. Unfortunately, there is insufficient recognition of the role the contract incentives can play.

by Robert D. Waldo
Associate Professor of Management
Naval Postgraduate School

In a contract the deterministic statements of specification, schedule and price are well understood. What, then, is needed for guidance when this full commitment cannot be met?

Quality, Time, Cost Trade-Off

The most commonly practiced technique for "recovery" is to hold either quality or budget constant, adjust the other and the schedule. Often, if the contractor perceives himself working under a rigid budget, he will sacrifice quality. The common complaint by Government comptrollers is that the contractor holds quality fixed and overruns his budget. Yet isn't this a valid practice if the contractor reasonably believes that the quality must be maintained?

The customer (DOD) is the only one who should give the contractor the necessary information about the relative military worth or benefit of quality and availability (schedule). But must the contractor continually return to the buyer for guidance on the relative value of these variables? This is one course of action where the buyer is obliged to control the contractor's operation indirectly through his judgments regarding the relative values of quality and time.

While valid, this course of action has three basic drawbacks:

- The buyer may exercise inconsistent value judgments from one time to the next jeopardizing achievement of a true objective.
- Small, detailed decisions in the day-to-day activities, in the aggregate, may have a major effect on the value of the product or service, yet be so small individually the contractor will make them based upon his own judgment of the relative values.
- The necessity of the contractor going to the buyer for decisions is not consistent with modern management principles in which most decisions are moved to the lowest possible level.

Trade-Off Decisions

Is there a contracting technique whereby the contractor can make the trade-off decisions consistent with the relative value of quality and time? By applying some basic principles a valid technique can be developed by which the contractor's decisions will be consistent with DOD's needs. In his conventional form of control, the contractor will project his current status to completion and compare this with the contract "target" values. As discrepancies arise, alternate courses of action may be identified which lead to a different set of quality values, delivery dates and costs. Provided these values fall within a contractually specified range, the alternative courses of action are valid.

Traditionally the contractor will decide by making judgments regarding the alternatives. For example, he may either decide to proceed along the nominal course which might meet the quality and schedule commitment but overrun the cost, or he may select an alternative course which reduces the level of effort, thereby falling short of the quality objectives but at a reduced cost overrun.

Determining Course of Action

Information can be included in the contract to give the contractor proper guidance in determining the best course of action. The standard technique of economic marginal analysis under conditions of constraint can be used to indicate the nature of this information. Under this analysis the marginal benefit and marginal cost ratios are developed for each alternative. Incremental values are needed and these are obtained by referencing all values to the nominal case.

To illustrate the technique, consider a hypothetical contract to develop an artillery rocket which has survived the budget's competitive ravages. For illustrative purposes, some vast simplifications, while still retaining the essential elements, are made in examining this example. The terms of the sample contract agreed to by the buyer and contractor are:

- *Quality*—Range: 20,000 meters; Dispersion: 100 meters; Reliability: 0.85; Deliveries: 10 units.
- *Availability of First Unit*—46 months.
- *Total Cost*—$50 million.

The development work proceeds but at program month 18 the contractor's projections indicate the range will only be 18,000 meters due to low rocket engine performance. A review indicates additional work on the rocket engine could improve performance to achieve the range of 20,000 meters.

The performance of additional engine work is estimated to have no effect on dispersion or reliability, but adds three months to the rocket development delivery schedule and $500,000 to the rocket development cost.

The cost and schedule effects, however, must be converted to the total rocket development program cost and schedule effects. The engine development schedule may not be setting the rocket program availability date of 46 months. The guidance system may set the date and the first rocket unit could be delivered two months earlier if availability depended only upon the engine development. In PERT terminology this would indicate the engine development schedule has two months slack time and the guidance system is on the critical path. The additional three months needed to improve engine performance, therefore, actually adds only one month to the program schedule. It is important to note these schedule considerations ignore any risk factors. In this illustration the ever present considerations of risk and uncertainty are subordinated to permit the emphasis to be placed on the value judgment aspects of the problem.

The true added cost to the buyer must be cautiously considered. The additional engine development cost does not amount to an additional cost of $500,000 for the artillery rocket program when there is a program schedule impact. In this example there is a one-month slippage in the program completion date; hence, there will be one more month of program administration cost, plus any other contract activity which must go on to the end. These are true additional costs associated with the added engine work and must be included in the evaluation.

Assuming that a careful analysis of the program costs shows these "other" costs to be $250,000, a total program cost increment is then $750,000.

Therefore, if the decision is made to perform additional work on the engine development, the projection on the hypothetical program can be summarized as follows:

- *Range*—Original contract: 20,000 meters. Projected nominal course: 18,000 meters. Alternative course: 20,000 meters.
- *Dispersion*—No change.
- *Reliability*—No change.
- *Availability*—Original contract: 46 months. Projected nominal course: 46 months. Alternative course: 47 months.
- *Cost*—Original contract: $50,000,000. Projected nominal course: $50,000,000. Alternative course: $50,750,000.

With this new information, the contractor may feel it is obvious that recovering the additional 2,000 meters is worth a 1.5-percent program cost increase and a minor schedule slippage so he makes the decision to pursue the additional work on engine development. In this case, the contractor is acting as though he knows the relative value of range, schedule and cost to the extent that going from a range of 18,000 to 20,000 meters is of equal or greater value than a month's slippage and an additional $750,000 in cost.

An alternative is to take the information to the buyer and ask him to make a decision. The buyer would have to determine if he would rather have 20,000 meters of range with a one-month schedule slippage and an additional cost of $750,000 or settle for 18,000 meters with the committed schedule and cost. This is a problem in preference and requires the buyer's judgment. Depending upon his location in the organization's hierarchy, the buyer may or may not be able to make a valid judgment. And if he can, what of the multitude of lesser alternatives the contractor has available in his day-to-day control of the operation?

Another contracting procedure is to capture the value judgments at the proper organizational level and prejudge the benefit of varying values for the quality and schedule aspects. Even this level of management may challenge its own ability to make these judgments but note that the concern is with relative abilities, and the buyer's ability is better than the contractor's ability exercised in a preemptive decision making process. Also the buyer is usually backed up with systems analysis data which provide a more tangible basis for specifying values of the marginal benefits.

Consider the general form which these value judgments might take in the hypothetical artillery rocket contract. At the targeted budget level the capability of 20,000 meters range with a dispersion of 100 meters and a reliability of 0.85, available in 46 months, was deemed to be worth at least $50 million. At a range of 18,000 meters, would the project survive or would it have "sold" at a lower cost? The judgment might be that at 18,000 meters the project was still worth $48 million. There also might have been a detailed systems analysis which showed the estimated cost of attacking targets in the 18,000 to 20,000 meter strip using alternative means, such as aircraft, equated to an added cost of $2 million. This would then be deducted from the value of the artillery rocket program as an opportunity cost. This procedure would lead to a curve as shown in Figure 1. This process would be repeated for dispersion, reliability and availability data.[1]

Figure 2 shows the artillery rocket in a typical contract incentive example using a straight line approximation over a limited range of values.

The decision alternative to "fix" the range will now have the following benefits relative to the nominal "change nothing" course. The in-

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[1] *The curve for range in Figure 1 might be altered with other than nominal values of dispersion, reliability and availability date. These interdependencies will be ignored, however, and only simple relations will be used for illustrative purposes.*

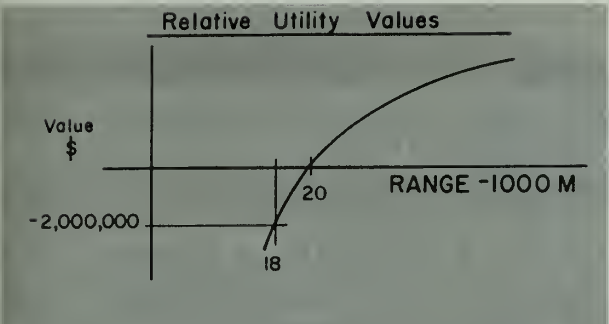


Figure 1

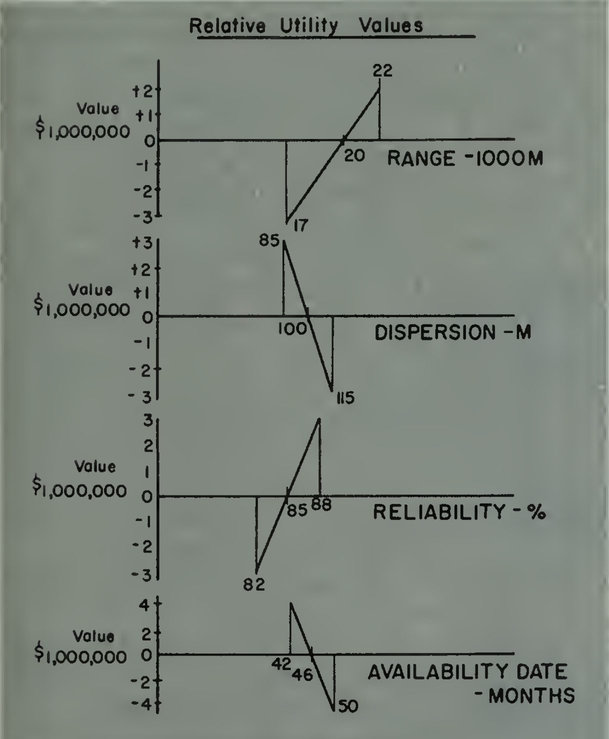
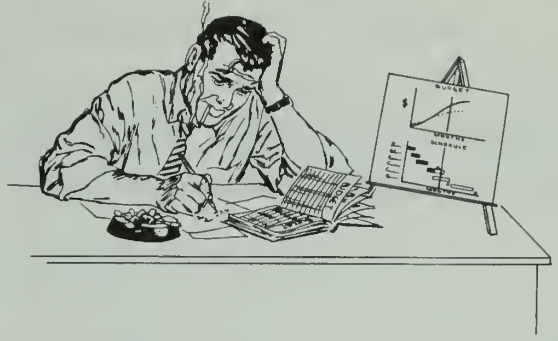


Figure 2

crease in range of 2,000 meters will add a benefit value of $2 million. The one-month schedule slippage will decrease the benefit $1 million making a net change in benefit value of $1 million. Is the expense consistent with this? Net cost increase of $750,000 has already been noted so the benefit value gained exceeds cost. The alternative decision to improve the rocket engine performance is, therefore, a good one and should be chosen based upon this information.

Value vs Cost of Benefit



Using appropriate marginal benefit values provided in the contract, the contractor, with marginal costs he computes, can obtain guidance for certain types of operational decisions. The benefits provided by a product or service are associated with the "what" (quality item) and the "when" (schedule consideration). The value of these benefits is balanced against the cost of realizing the benefit.

Marginal values are found by taking the incremental value between two decisions—the nominal course of action or an alternative. If the value of the marginal benefit divided by the marginal cost is greater than one, the alternative is preferred; if the ratio is one, the choices are indifferent; and if the ratio is less than one, the nominal course is preferred.

The buyer of a product or service regularly defaults by inadequately defining the terms of the contract with the providing contractor. Deviations from the plan made by the contractor should initiate decisions regarding alternative courses of action. When no guidance is provided in the contract, the contractor, confronted with an inadequately defined decision process, often preempts the decision criteria and proceeds based upon his own judgment.

The buyer holds the key to the evaluation of the several benefits. The typical buyer responds to this challenge by expressing his utter inability to make valid benefit value judgments, thereby expressing the justification for his not making such judgments, at least *a priori*. But the buyer for the Defense Department is, in turn, responsible to a higher authority which, at some level, made the judgment that the project and its contribution to the Nation's defense warrants the expenditure of the budgeted funds considering the alternative competing use of these funds. There must be a level, then, at which the benefit value judgments can best be made and passed down with the execution documents to provide the contractor a complete package of authorization, direction and guidance. ☐

a few words about...

Packard Honored by Electronic Industries

David Packard, chairman of the board, Hewlett-Packard Co., and former Deputy Secretary of Defense, has been named to receive the Medal of Honor of the Electronic Industries Association (EIA).

The electronic industry's highest personal award will be presented to Mr. Packard on March 13, 1974, during EIA's annual Spring Conference in Washington, D.C.

Mr. Packard will be the 23rd recipient of the award which recognizes outstanding contributions to the advancement of the electronic industry.

Productivity Report Now Available

The final report of the Joint Measurement Systems Project, "Measuring and Enhancing Productivity in the Federal Government," was issued in June and is available from the General Accounting Office.

The project, conducted by the Office of Management and Budget, Civil Service Commission, General Accounting Office and the Bureau of Labor Statistics with 54 participating agencies, covers 60 percent of the Federal civilian employment in FY 1972. The report offers 19 recommendations including a call for an annual productivity measurement review.

Requests for copies should be sent to:

U.S. General Accounting Office
Room 6417
441 G St. NW
Washington, D.C. 20548

STRATCOM Expands Communications Role

The worldwide Army Strategic Communications Command (STRATCOM) has assumed communication and electronic responsibility for more than 80 Army installations throughout the continental United States (CONUS).

Three STRATCOM intermediate command elements have been established to parallel the command structures of the Army Materiel Command, Alexanria, Va., Training and Doctrine Command, Ft. Monroe, Va., and Forces Command, Ft. McPherson, Ga. The newly formed intermediate command elements will be assigned to STRATCOM-CONUS headquartered at Ft. Ritchie, Md.

The objectives of the realignment of communications management in CONUS are to streamline management through centralization and reduce overhead. The command concept is to standardize communications engineering, installation, operating and maintenance practices.

Air Force has taken delivery of the first of its new T–43A airborne navigation trainers. The first of the 19 modified Boeing 737–200 jet transports was delivered to Mather AFB, Calif., July 31. The T–43A will replace the Air Force's fleet of propellor-driven T–29's.

Design to a Cost Tied to DSARC

Deputy Secretary of Defense William P. Clements has issued a memorandum requesting the establishment of design to a cost goals for all Defense Systems Acquisition Review Council (DSARC) programs that have not reached Milestone III.

The individual Military Services are to submit proposed average unit "flyaway" cost goals as well as implementation plans to provide their program managers authority to make the performance and schedule adjustments necessary to achieve design to a cost goals. These proposed goals and their implementation plans will then be reviewed by DSARC.

The intent of the memorandum is that all new major programs will have established design to a cost goals.

EIA To Sponsor Computer Workshop

The Electronic Industries Association will sponsor a workshop on management problems related to deliverable computer programs and computer-aided design/production in the aerospace industry at the Parker House, Boston, Mass., October 29 to November 2, 1973.

The workshop, DACOM–VII, will focus on data and configuration management problems related to the development, test and integration, operation and maintenance of computer programs. The workshop is open to all industry and Government personnel and educators.

Further information on DACOM–VII may be obtained from the Electronic Industries Association, 2001 Eye Street, N.W., Washington, D.C. 20006.

Scientist Wins AMC Award

Raymond Bell, a physical scientist with the U.S. Army Materiel Systems Analysis Agency, Aberdeen Proving Ground, Md., has received the 1972 Army Materiel Systems Analysis Award.

Mr. Bell was recognized for his contributions in support of the Army's vehicle procurement effort, improved engineering test/service plans for the Lance missile and for life cycle reliability analysis of surface-to-surface missiles.

The award, one of the highest presented by the Army Materiel Command (AMC), is given in recognition of technical achievements rendered by AMC military or civilian personnel engaged in operations research/systems analysis activities.

Air Force Tests Aircraft Models

Using generalized scale-model shapes of aircraft and external stores, the Air Force Systems Command's Arnold Engineering Development Center has completed another of a series of studies to obtain data for the design of future aircraft.

The tests, sponsored by the Air Force Flight Dynamics Laboratory, Wright-Patterson AFB, Ohio, have been conducted periodically over the past three years in an effort to develop a mathematical description of the forces acting upon bombs, gas tanks or other external stores as they separate from an aircraft in flight.

An accurate mathematical model would make it possible to predict size, shape and flight characteristics of payloads to be carried by future aircraft.

University Offers Metric Course

George Washington University and the National Bureau of Standards will co-sponsor a course, titled Planning for Metric Conversion, to be held at the University on October 30 to November 1, 1973.

The course will cover problems involved in metric conversion and is designed to meet the needs of research and development, design and manufacturing engineers.

On November 14 to 16, the University will also conduct a course on Effective Quality Management. The course will introduce participants to the latest developments in quality control management techniques.

Further information can be obtained from the Continuing Engineering Education Program, George Washington University, Washington, D.C. 20006.

Designed to provide long-life communications for space programs, this sun-powered laser device is being developed by the Air Force Avionics Laboratory, Wright-Patterson AFB, Ohio. Using lenses and mirrors, the device collects and focuses the sun's rays, stimulating material in the laser to produce light beams capable of transmitting data, television, voice and other communications.

Report Issued on Design to a Cost Compatibility

The Defense Science Board Task Force on Reducing Costs of Defense Systems Acquisition has issued a report comparing the commercial practice of design to a cost with that of the Department of Defense. The report offers recommendations on how the concept can improve the DOD systems acquisition process.

Copies of the report can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at a cost of 85 cents each. The order number is: D 1.2:C82/2.

Safeguarding Classified Information

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rity Policy) participated in the survey of the security system at NATO Headquarters; and the Deputy Assistant Secretary of Defense (Security Policy) was a member of a second committee which reviewed the recommendations made by the first group and adopted most of them for implementation.

In November 1972, the Deputy Assistant Secretary of Defense (Security Policy) served as a member of a review commission, established by the Secretary General of NATO, to determine the extent to which the recommendations for improvement had been carried out. The conclusion of the commission was that considerable progress had been made in personnel, physical and document security and that overall protective security within NATO had shown a significant improvement.

Mutual Benefits

The practice of exchanging classified information with other governments through the medium of an international organization needs no justification. In general, it has served to improve the defense posture both of the United States and those nations with whom the information has been shared. It has avoided duplication of research and production costs by disclosing to participating nations either the existence of desired defense materials or the technology to produce them. While it has not removed all the barriers that surround both the secrets of the United States and those of its allies, it has established carefully controlled conduits through which selected elements of classified information may flow from one government to another in the interest of mutual defense.

The ability of the United States to exchange classified information is based on its ability to protect the classified information received and to assure the protection of information released. The community of nations, individually and collectively as members of NATO, is fully cooperative in undertaking progressive and practicable security programs to meet allied objectives. ☐

Senate Bill Proposes

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from the budget request for supporting assistance. The total reduction from the budget requests for these programs comes to $1.512 billion. When military aid for Vietnam, Cambodia and Laos are considered later, in connection with proposals for reconstruction, additional savings can be anticipated from the amount budgeted.

Policy Must Be Changed

In his inaugural the President said, "The time has passed when America will make every other nation's conflict our own, or make every other nation's future our responsibility, or presume to tell the people of other nations how to manage their own affairs. . . . So let us encourage individuals at home and nations abroad to do more for themselves." That is the basic thesis of the Nixon Doctrine.

Twenty-six years ago, with the Greek-Turkish aid program, the United States began a program of economic and military aid whose purpose was to contain communism and promote the growth of democracy around the world. The results in Greece, whose people are controlled by a military dictatorship, leave something to be desired. It is an appropriate benchmark for evaluating the entire military aid program.

Today the problem is not the fall of friendly dominoes to communism but their fall to military rule. Totalitarianism of the right should be as offensive to Washington as totalitarianism of the left. But the major recipients of our military aid—Korea, Thailand, the Philippines, Greece, and Taiwan are hardly paragons of democratic governments. Yet, in the lexicon of the military aid program they are all "free world" countries—our kind of folks.

The world of a quarter of a century ago, which spawned the military aid program, bears little relation to the world of today. The cold war is over. Yet the policies of that era linger on in the military aid programs. It is time to wipe out this relic of the past and chart a new course, one which is geared both to the realities of the world today and the depleted state of our national pocketbook. ☐

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